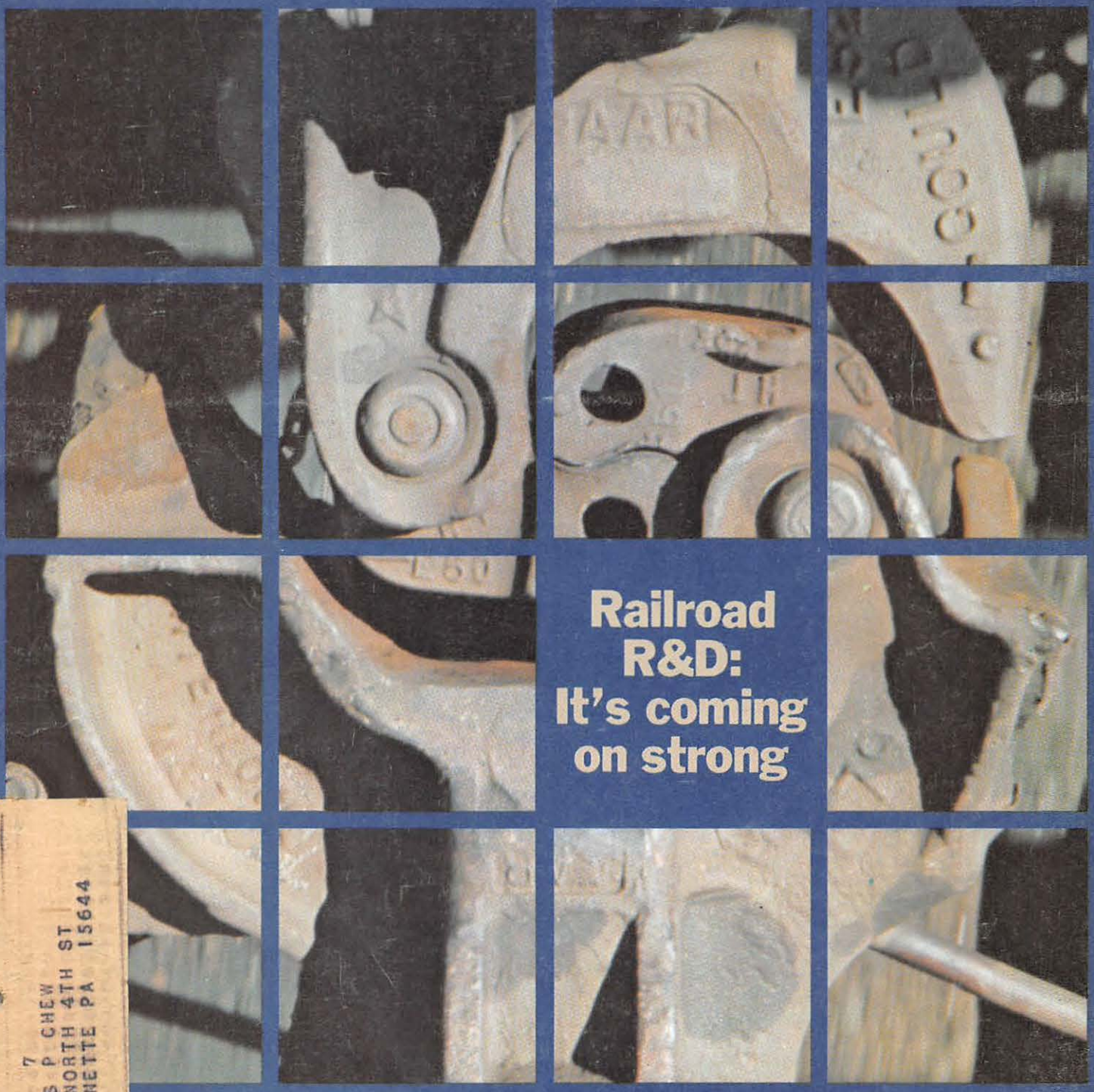
**SPECIAL REPORT: Ideas for better shipping**

September 30, 1974

# RAILWAY AGE



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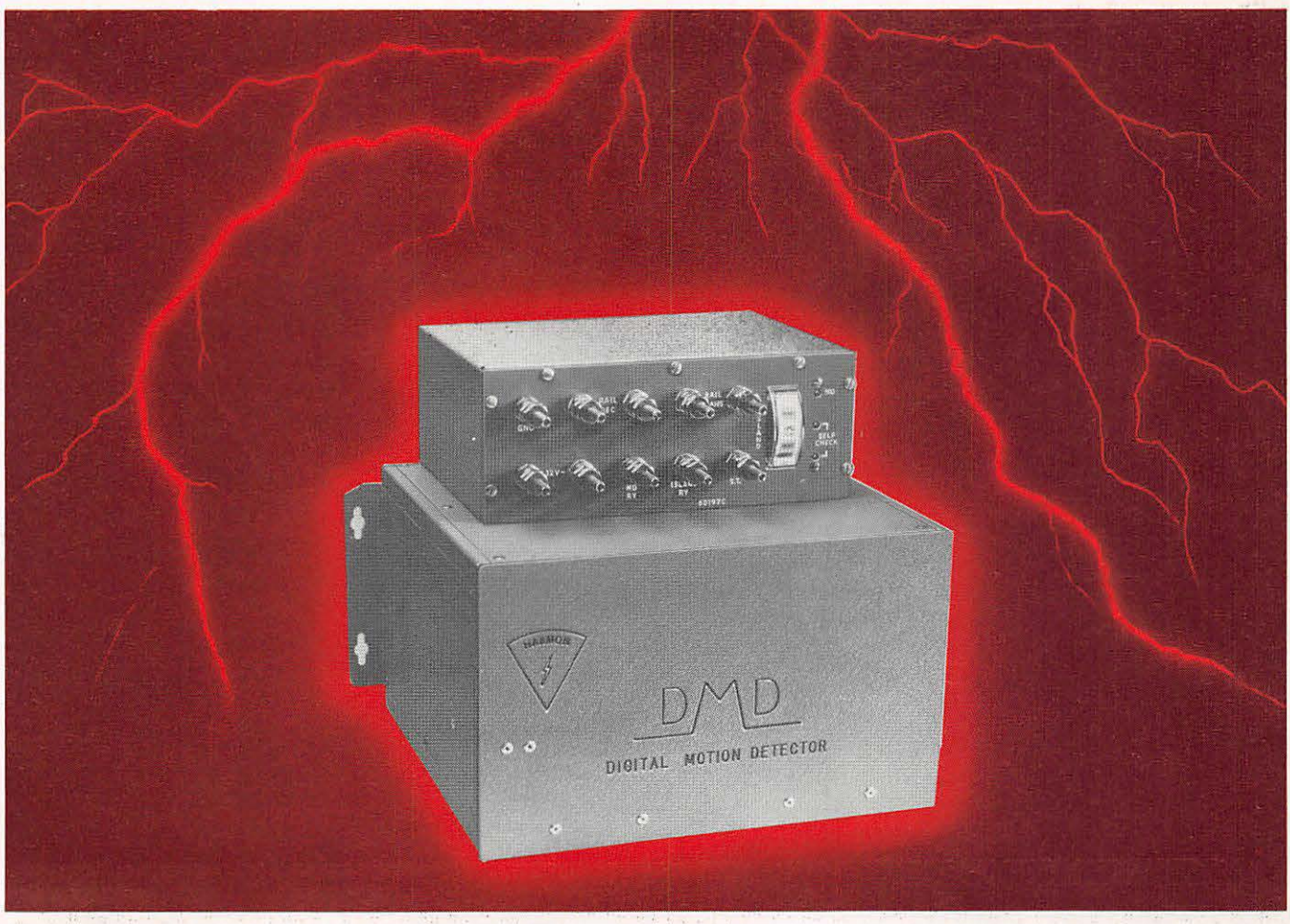


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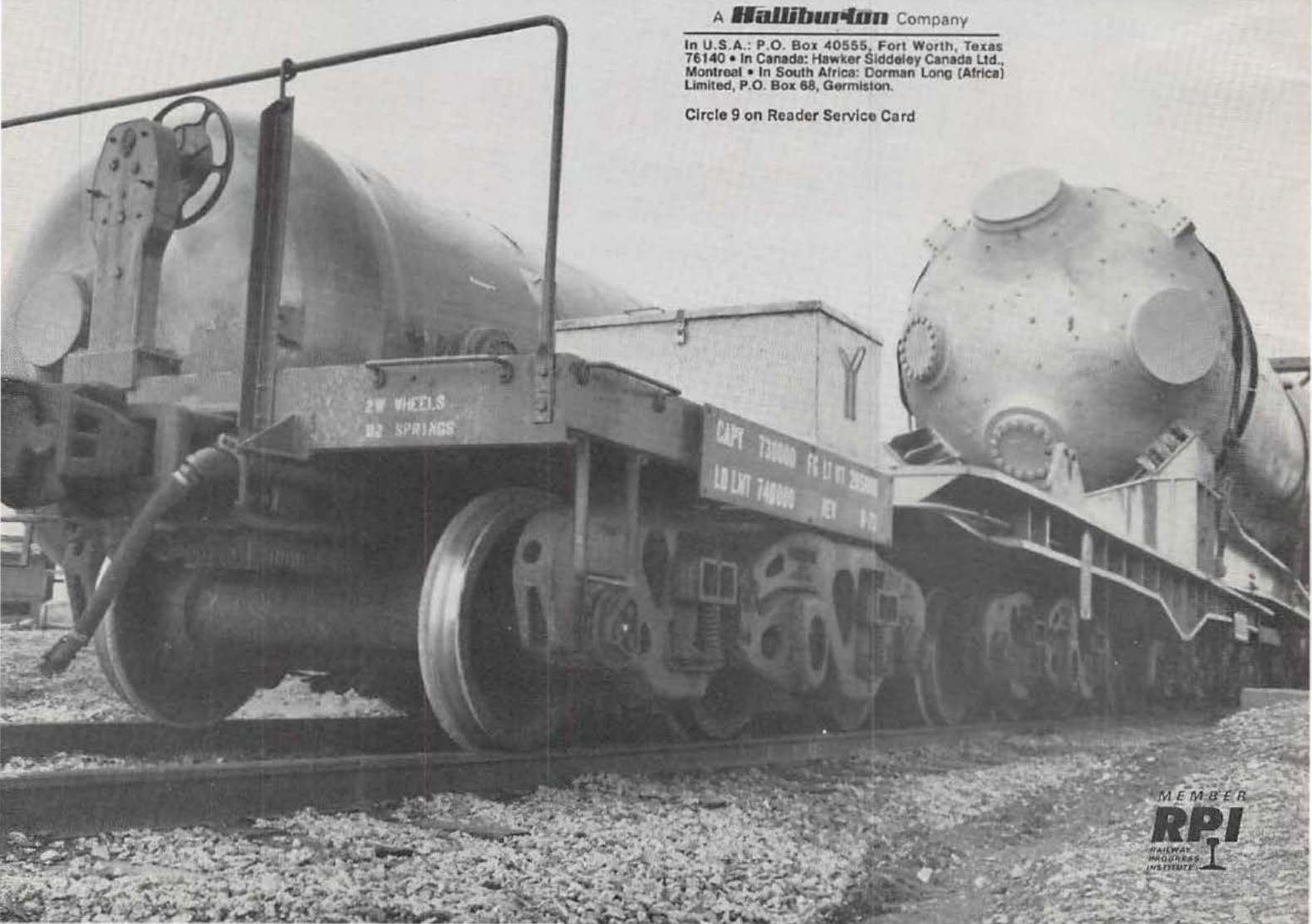

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# Inside

LUTHER S. MILLER

## NEEDED: A CASH DIET

"Railroads in this country, with a few notable exceptions, are beginning to let their systems go to pot. . . . The number of permanent slow orders is increasing. The number of outlawed crew sizes—those who have been on continuous duty for the maximum of 12 hours and have to stop, no matter where they are—is increasing. Locomotive availability is falling off. Operating department frustrations are on the increase. All the signs of 'crummy' railroading are appearing."

The diagnosis is John Ingram's. Addressing the AAR's Data Systems Division meeting in Atlanta Sept. 18, he also offered a prescription. Not, he said, the Federal government "buying out the railroad industry," but rather helping the industry "to make it on its own—to earn an honest living, pay an honest wage and do it at a reasonable profit. Very simply, the railroad industry needs access to cash."

The railroad bill now starting to move through Congress, suggested FRA's chief, can provide this help—both in the form of $2 billion in loan guarantees and in modernized regulation.

Even as Ingram spoke, the House Commerce committee was moving toward a favorable vote (p. 16). The bill, particularly some of its regulatory language, won't please everybody. Some of it won't please anybody except DOT theoreticians. But if the "pretty dismal picture" which Ingram sketched in Atlanta is accurate—and we believe it is—then all concerned may do well to accept what's offered, while there is still time.

In this issue of Railway Age, Senior Editor Gus Welty relates what is essentially an upbeat story on railroad R&D (p. 20). But Gus, like his friend John Ingram, knows that the best brains doing the best research aren't worth a rusty spike unless there is the wherewithal to put the results to work.

## ARE TRUCKERS MYTHING THE MARK?

In recent weeks both the Association of American Railroads and the American Trucking Associations have published documents claiming that their respective member carriers are, in fact, the most efficient users of energy. The AAR makes its case in a 24-page 9-by-4-inch brochure which quotes studies, and statistical tables derived therefrom, by both the National Science Foundation and the Battelle Institute demonstrating that trucks consume about four times as much energy as railroads to carry the same freight the same distance. The AAR document is entitled, appropriately, "More Miles to the Gallon."

The ATA's 10-page, 8½-by-11-inch booklet, entitled "Trucks, Trains and Truth," and sub-titled, "Debunking the Rail Energy Efficiency Myth," is unable to call upon any such independent surveys to buttress its own case—perhaps because there aren't any. ATA concedes, in fact, that "there is no disputing. . .that railroads can move large quantities of dense commodities in heavy volume between fixed points with lower consumption of fuel per ton-mile than can trucks." But ATA contends that the ton-mile is not really a good measure of energy efficiency; ATA prefers a "value of service" yardstick.

We think that the weight of the evidence is on the railroads' side. Readers who want to study the claims of both sides and make up their own minds are advised to write to the AAR and the ATA for the relevant documents.

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And that's not the only way we're working to improve our railroad and help keep our country's economy on the right track.

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## We're making tracks for the future.

# RAILWAY AGE

SEPTEMBER 30, 1974

## FEATURES

**FREIGHT TRAFFIC ISSUE:**

COVER
Design by Art Director Maurice Mates; close-up photo of car coupler by Wallace W. Abbey.

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# Short and Significant

### LATEST SPENDING FORECAST: UP 23%

The U.S. Department of Commerce is now estimating that expenditures for railroad capital improvements will total $2.41 billion in 1974, an increase of 22.8% over 1973's $1.96 billion. For all U.S. industry, Commerce is forecasting capital investments amounting to $112.2 billion, up 12.5% from 1973. The new estimates, announced Sept. 5, are based on data collected in July and August.

### AMTRAK'S FIVE-YEAR PLAN

Amtrak has submitted to Congress and the DOT a plan calling for investment of $1 billion in track improvements over the next five years, plus $263 million for immediate purchase of 435 new cars (235 double-deck and 200 single-level) and 25 electric locomotives. These would be in addition to cars and locomotives previously ordered. Amtrak President Roger Lewis said the five-year plan is based on ridership trends which indicate that Amtrak will be furnishing 8.3 billion passenger miles of travel to 37 million passengers in fiscal 1979 as compared with 4.3 billion passenger miles and 19 million passengers in the current fiscal year.

### READING GOES INTO THE BLACK

August 1974 was the Reading's first black-ink month since it went into bankruptcy in November 1971. Trustees Andrew L. Lewis, Jr., and Joseph L. Castle reported a $487,000 net income in August on a fully accrued basis. Revenues were $13.6 million, up from $10.8 million in August 1973; operating expenses were $9.9 million, up from $9.5 million. For this year's first eight months, Reading reported a loss of $3.5 million vs a loss of $9.7 million for the corresponding 1973 period.

### PORTLAND TO PORTLAND: 250 FMC CARS

FMC Corp.'s Marine and Rail Equipment Division, Portland, Ore., in mid-September delivered the first of 250 box cars to the Maine Central in Portland, Me. The 70-ton, 50½-ft cars, with 10-ft. sliding doors and cushioned underframes, will haul pulp and paper products. Said William R. Galbraith, manager of sales at the FMC division: "We developed this type of car with western railroads for western wood products companies, adapting them to serve the same forest products usage for which the Maine Central needs them. Thus, the Maine Central is sharing in advanced freight car design by purchasing a car already in use today, carrying Northwest forest products."

### TOWARD A CLEANER ACI

One of the problems with automatic car identification—a not-high-enough level of label-readability—may be on its way toward solution, with action by the AAR Operating-Transportation Division General Committee to set up a combination action/education/data-collection program. As one part of the program, nine roads are lined up to participate in a stepped-up drive to do whatever is necessary to correct no-reads and wrong-reads when they show up, including labeling, re-labeling and cleaning.

### AN UNDERSTANDING, NOT A SETTLEMENT

Railway Age erred on the side of the optimistic (RA, Aug. 26, p. 8) in reporting that the railroads and the Sheet Metal Workers' International Association have reached an agreement "wrapping up the last dispute remaining from the 1973 series of negotiations and removing the threat of a walkout." Actually, what's involved is an interim understanding, with provision for expanded negotiations. SMWIA had been free to strike Aug. 2, but the "understanding" will prevent a walkout until at least next Jan. 1. In the meantime, as reported, employees represented by SMWIA will receive, retroactively, the 4% wage increase which other rail employees got last Jan. 1.

### RAILBOX GUARANTORS? ADD SANTA FE

On the roll-call of Railbox guarantor railroads (RA, Aug. 26, p. 16), one name was missing—and it shouldn't have been. To the list, add Santa Fe as one of those guaranteeing equipment obligations for financing the initial RBOX 10,000-car box-car fleet.

### GREENOUGH DIES AT 69

Allen J. Greenough, 69, last president of the Pennsylvania prior to its merger with the New York Central, died of cancer Sept. 22 in New York.

### SERVO GRANTS ACI LICENSE

Servo Corp. of America, producer of KarTrak Automatic Car Identification Systems, has granted a retroactive license to Computer Identics Corp. and its subsidiary, ACI Systems Corp., both of which are subsidiaries of Pullman Inc. The licensees will make royalty payments to Servo for "past and future manufacture, use, lease or sale of automatic car identification equipment covered by more than 70 U.S. and international patents and applications held by Servo," according to the Servo announcement.

# If you think Canadian Pacific is too far away to deal with directly, consider these points.

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CP Rail

# From Pullman: A new family of open-tops

With an eye fixed firmly upon demand-projections for coal-carrying railcars, Pullman-Standard is coming out with a broad new line of open-tops, in both a hopper and a gondola configuration. First production-cars—open-top hoppers—will come off the line at Butler, Pa., shortly after the first of next year, and they're expected to be the first of many thousands of cars built to the new design: Pullman-Standard figures that "as many as 150,000 new coal-carrying cars may be required during the next 10 years if a reasonable balance between supply and demand in energy is to be achieved," and even that forecast could be low if coal comes on as strongly as some forecasters believe it will.

The prototype car which P-S chose to unveil in late September is a high-side gondola for rotary-dump unit-train service. But the whole "new family" will have six basic family members:

—A triple-hopper with 30-degree and 42-degree slope sheets and capacities ranging from 3,400 to 4,000 cubic feet.

—A quad-hopper with the same slope-sheet and capacity configurations.

—A quad hopper with 45-degree slope sheets and 3,600-cubic-foot capacity.

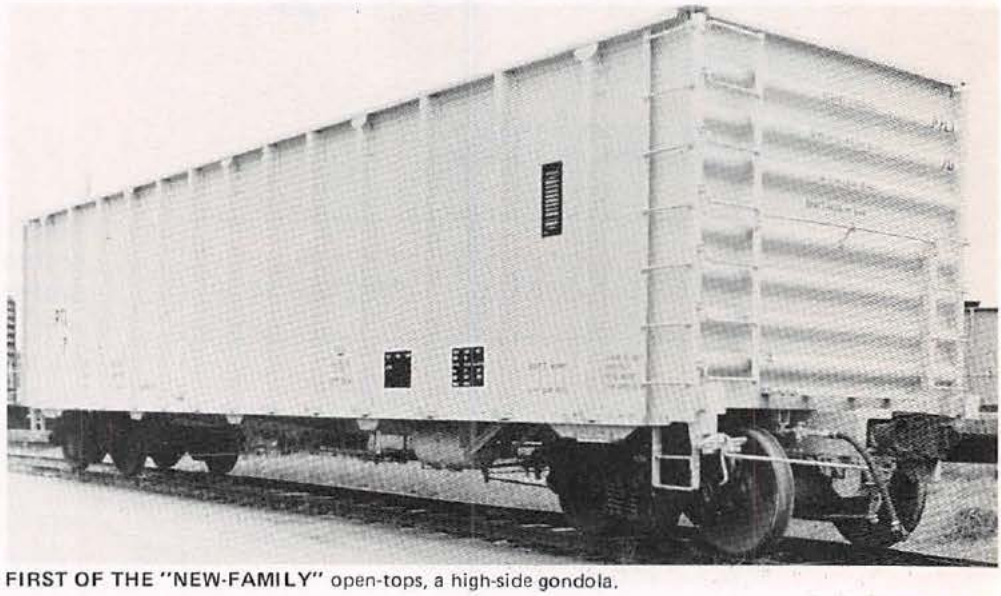
—An automatic-dump hopper with transverse doors, 45-degree slope sheets and 3,600-cubic-foot capacity.

—An automatic-dump hopper with longitudinal doors and 3,600-cubic-foot capacity.

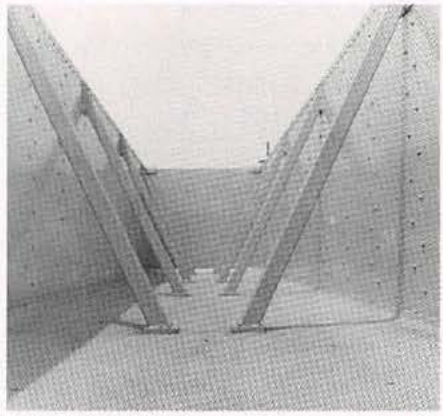
—The high-side gondola, equipped for rotary-dump, with 4,000-cubic-foot capacity.

—A low-side gondola, available in either 70- or 100-ton capacity.

P-S obviously has high hopes for the new open-top designs, which have been three years in the making. And the result of all that pre-construction work, P-S says, is that the cars coming out of Butler will be designed "for unprecedented durability, dependability and ease of maintenance in the movement of coal and other commodities." No railroad runs to the moon, but there's a certain amount of moonshot technology in the design: "Research and engineering included the first use in the carbuilding industry of a computer design analysis system. The same system, NASTRAN—for NASA STructural ANalysis—was used in the development of the Apollo spacecraft." Translate that into steel-wheel/steel rail terms, and it means that P-S is confident that new-family cars will run up maximum mileages with minimum problems.



**FIRST OF THE "NEW-FAMILY"** open-tops, a high-side gondola.



**ON THE INSIDE,** the P-S gon shows its riveted-side construction; smooth floor with drain holes and with floor plates turned to eliminate lading- and moisture-trapping 90-degree floor/side junctures; and rectangular-tube interior bracing, of 5-by-3-inch rectangular steel tubes.

**UNDERNEATH,** the prototype displays a modified center sill, modified from the standard AAR Z section by turning the short flanges inward; and the P-S under-the-axle hook-and-eye brake arrangement for improved brake application and elimination of rod/lever binding on curves.

Among the design features of the open-tops:

—First, look at the prototype rotary-dump high-side gondola itself. Unlike previous P-S designs, this car will have riveted instead of welded component side parts (and this feature will hold through the entire new line of cars). Sides will be made up of 3/16-inch copper-bearing high-strength steel side sheets, 13 high-strength steel side posts, plus a high-strength steel side plate and side sill; rivets are 3/4-inch diameter; corner caps are steel. Design is straight-side, paralleling rotary-dump platens and gaining an advantage in providing a lower center of gravity. On the car interior, sides are reinforced by use of 5-by-3-inch steel diagonal rectangular-tube braces, attached to the carside with a 5/8-inch-thick copper-bearing steel plate and at the floor through use of a forged connection plate and lock bolts through the floor and crossbearer cover

plates. Couplers are Type F, rotary at the A end and fixed at the B end.

—Basic construction features on hopper cars will not be much different from design of the prototype gondola. For example, all cars will have a modified center sill, modified from the standard Z section by turning short flanges inward; this, P-S says, permits widening of the hopper-car transverse gate openings by more than 6 inches on each side of the center sill while the strength of the Z-section sill is retained. Body bolsters incorporate design features built into the P-S new-family box-car line, introduced earlier. A choice of integral or separate center plates is available, though "recommended as standard in the new open-top cars is the separable body center plate, allowing the use of various bowl diameters and a wide range of brinell hardness; in addition, worn center plates can easily be replaced."

—Basic standard length of new-family open-tops will by 53 feet, 1 inch over coupler pulling faces, with a constant inside width of 9 feet, 9½ inches, and cubic capacity determined by the height of the carside."

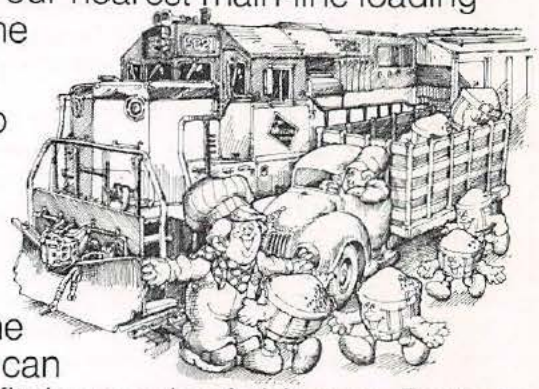
● **"Full redesign."** Obviously, standardization is a major element in the new cars, just as it was 20 years ago when P-S came out with the PS-3 open-top triple hopper car. But, P-S says, the new line represents "a complete redesign. . .It embodies new technological advances and new developments in metallurgy that, combined with P-S experience and knowhow, make it particularly well-suited for today's and tomorrow's railroad needs."

Railroad needs? Make that railroading and railroad and user needs. Make that railroad and user involvement in car-supply. At the end of last year, there were approximately 552,000 open-top hopper cars and gondolas in service, and of that total, only about 8,200 were provided by car companies and shippers; by contrast, private car lines and shippers accounted for almost all the tank cars in use, more than 53,000 covered hopper cars, more than 30,000 flat cars and more than 30,000 refrigerator cars. If you believe what some people are saying, (1) there will be tremendous demand for open-top equipment in the years immediately ahead, and (2) much if not most of that demand will be filled by users and not by carriers. P-S says it has made a "major capital expenditure" for new equipment and tooling at Butler for production of the new open-tops, and that's to be expected. In view of the forecasts being made as to who's going to provide the equipment, maybe there's also some really substantial future meaning (whatever the P-S reason for it may have been) in the fact that the prototype car bears the reporting mark of PTL—for Pullman Transport Leasing.


# How we team trucks and trains to get grain to market.

Sometimes the best way to ship on the Milwaukee Road is not *completely* by rail.

In the plains states, for example, some of the grain elevators we serve are located on light density branch lines. To help speed shipments from these points to the market centers and better utilize our freight car fleet, we use the trucks of our subsidiary, the Milwaukee Motor Transportation Co. A quick drive from the elevator to our nearest main-line loading point...then on to the market by rail.



At a savings of up to several days over the all-rail route.

Service like this to our branch line customers is just one example of how we can tailor our service to fit the needs of shippers. Perhaps we can do the same for you.

Whatever you ship, wherever you sell it, we'd like the opportunity to work with you in getting your goods to market. We're a railroad. But our business is *total distribution*.

THE MILWAUKEE ROAD

**America's Resourceful Railroad**

# Watching Washington

## USRA: MORE TIME, MORE MONEY

R.M.M. McCONNELL

To the surprise of practically nobody, officials of the United States Railway Association have asked for a 120-day extension of the Oct. 29 deadline set by Congress for submission of a preliminary rail system plan. The request came in testimony by USRA President Edward G. Jordan before the transportation subcommittee of the House Committee on Appropriations. It was coupled with a request for an increase in USRA's administrative expense limitation from $26 million to $40 million.

Jordan told the legislators that a series of problems—including litigation over the Regional Rail Reorganization Act; the fact that work being done outside the association on a contract basis will not be completed until December or January; and that Congress had slowed USRA activity by delaying approval of its board of directors—had all put the association in a position where it could not meet the deadlines established for the preliminary system plan with anything substantial.

## JORDAN SEES WASTE IN HASTE

While he acknowledged that the granting of a 120-day delay for the system plan—and consequently for everything else on the USRA schedule—might drive up the costs of both designing and implementing a new rail system, Jordan pointed out that doing the job in a rush and with an incomplete data base would also escalate later costs.

What are the chances of winning from Congress a delay in the USRA schedule? At this point, they look good. It is no secret that the slow action on the approval of the Association's directors limited the activity of employees for several months. It is also widely felt that the whole timetable for action mandated by the Regional Rail Reorganization Act was unrealistic. In addition, that timetable calls for the Interstate Commerce Commission's Rail Services Planning Organization to schedule hearings on the preliminary plan shortly after its introduction October 29.

As things stand now, USRA can't finish the preliminary plan by Oct. 29, although they could deliver something on that date if they had to. Over at RSPO, they understandably don't want to hold hearings on a non-plan, regardless of what that Congressional schedule calls for. So RSPO can be expected to add its opinion in favor of the asked-for delay.

With all of this going for it, and only possible Congressional pique over the failure of an agency to meet a lawmakers' timetable against it, it looks like the USRA delay is a sure thing. In fact, Association staffers report that preliminary inquiries among the appropriate committees received a favorable enough reception to warrant Jordan's open appeal.

## USRA NAMES EXECUTIVE COMMITTEE

In another move aimed at meeting the requirements of the Rail Reorganization Act, USRA has set up an executive committee of its board of directors. By statute, the committee includes the Secretary of Transportation, chairman of the ICC, and USRA's chairman, as well as two other USRA board members. The board elected William W. Scranton and Gale B. Aydelott as the board members of the committee.

# $12.9-billion trust fund for railroads?

The search for ways to pump new money into railroad modernization is increasingly commanding the attention of politicians. Right now, most-likely-to-succeed odds go to a $2-billion loan-guarantee program that is starting to move through Congress (p. 16). That is not enough for Senator Vance Hartke (D.—Ind.), who is pushing for legislation calling for transfer of rail trackage, on a voluntary basis, to a Federal corporation (p. 19). But to Pennsylvania Gov. Milton J. Shapp, both of these are half-way measures. On Sept. 20, Shapp came to New York and, first at a well-advertised press conference, and later at a gathering of security analysts, proposed the boldest bailout of them all: a $12.9-billion trust fund for modernization of the railroads' fixed plant, plus a revolving loan fund to finance $1 billion to $2 billion of equipment purchases at "moderate" interest rates.

The $12.9 billion in trust fund outlays would spread over a six-year period. The funding device would be government-guaranteed obligations to be financed by a 5% surcharge on freight revenues. At present levels, that would raise over $600 million a year. Railroads would receive rehabilitation grants in proportion to their surcharge collections.

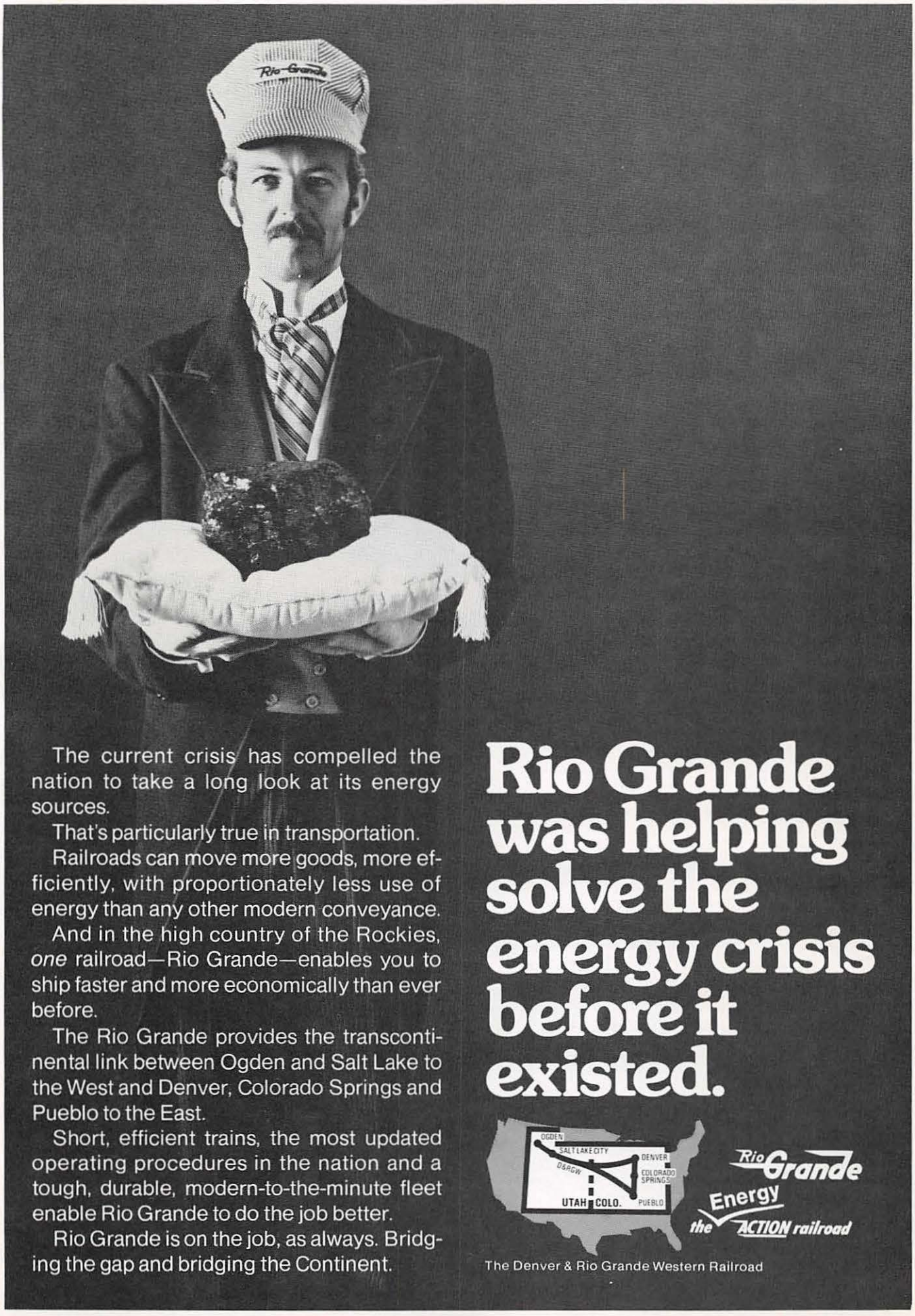
Of the total, Shapp suggested, about $6.9 billion should go for new rails and ties, $3.2 billion for electrification, $900 million for yards and terminals, and $1.9 billion for other roadway and structures improvements.

Shapp noted that the concept was not unlike that of the Highway Trust Fund, which came into being in 1956.

The idea that freight users should help to finance carrier improvements is not a new one. When he was head of the Federal Railroad Administration, Reginald Whitman, now president of the Katy, proposed a shipper-surcharge to be dedicated to railroad improvements, though on a more modest basis than Shapp now proposes. And early this summer, the Interstate Commerce Commission, in granting a 10% railroad freight increase, ordered that the additional revenues be spent for capital and maintenance projects that had earlier been deferred for want of money.

In calling for a shipper-financed trust fund, Pennsylvania's governor said it was time for "a national commitment by both government and the private sector to develop a truly modern rail system throughout the nation."

He called the Regional Rail Reorganization Act "an abominable compromise in which everyone loses."




The current crisis has compelled the nation to take a long look at its energy sources.

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Rio Grande is on the job, as always. Bridging the gap and bridging the Continent.

# Rio Grande was helping solve the energy crisis before it existed.




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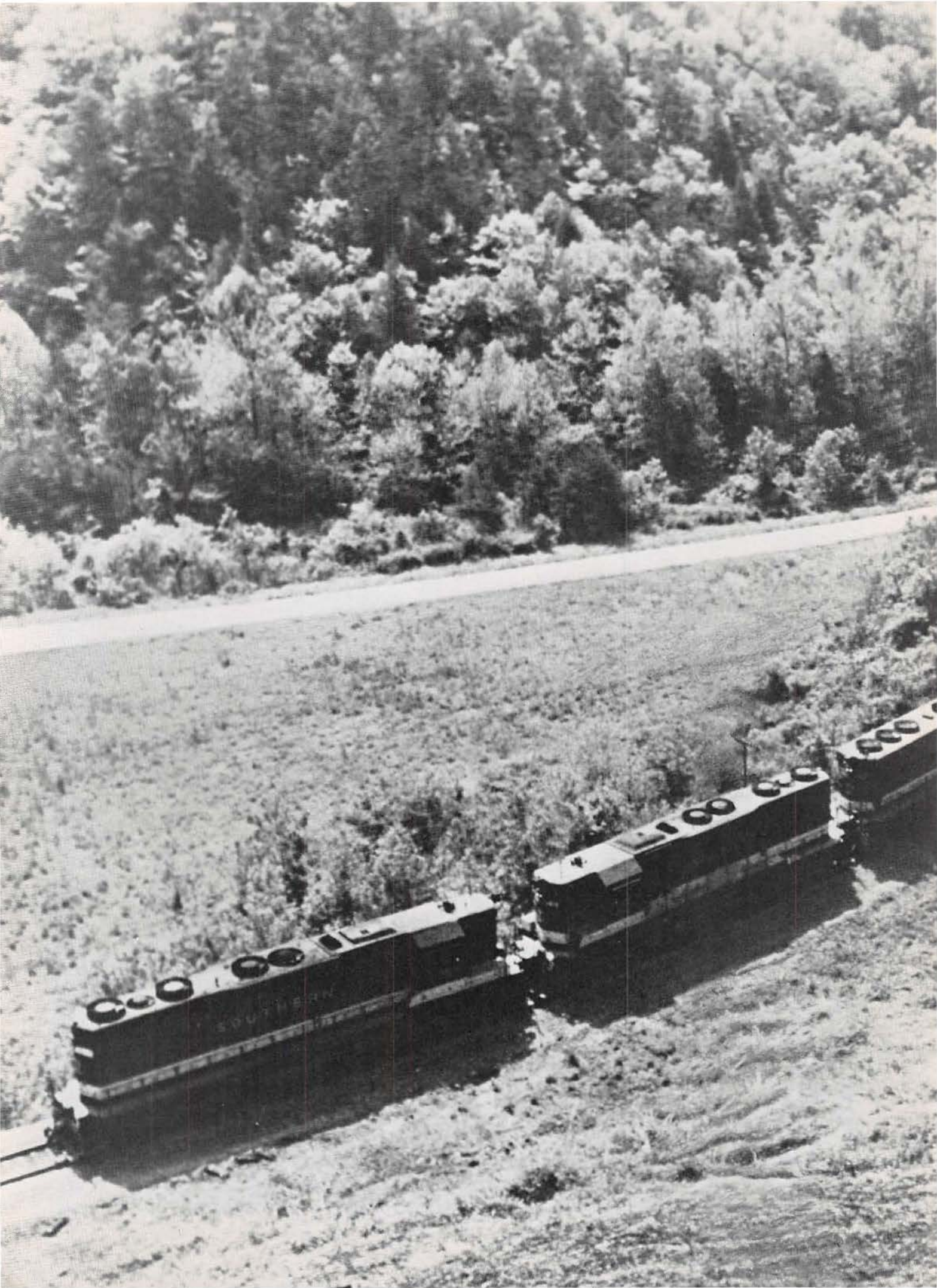

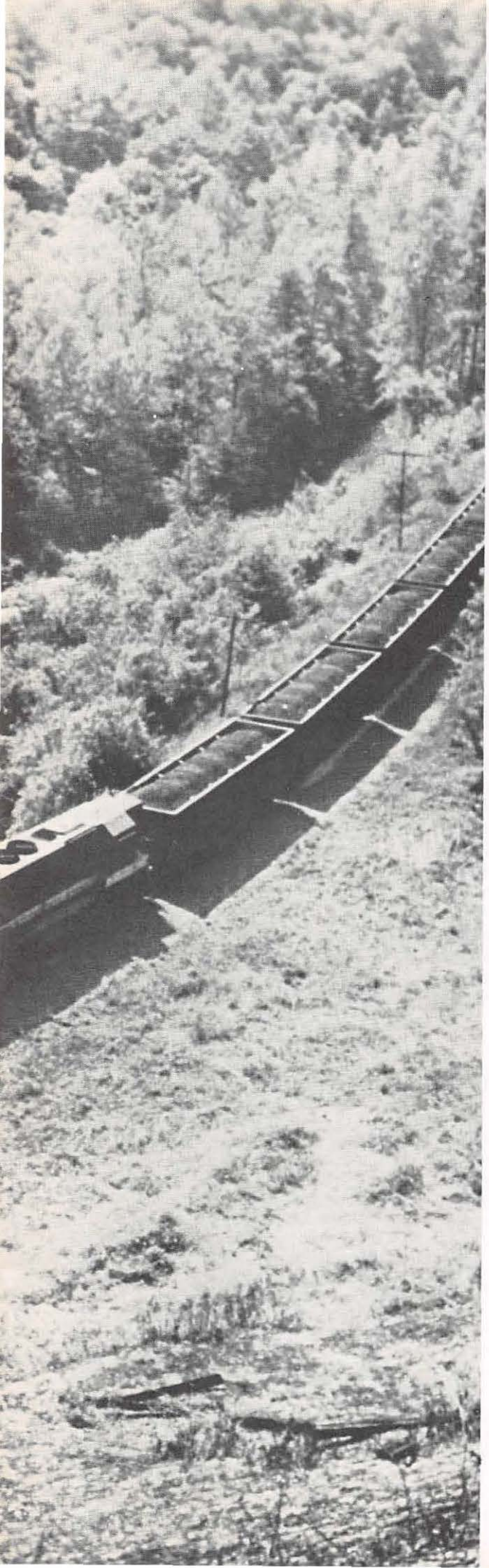

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Timken "AP" railroad bearings. They keep unit trains running trouble-free mile after mile. After mile. After mile. After mile.

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Circle 6 on Reader Service Card

# Lines on Labor

GUS WELTY

### "NOBODY KNOWS THE TROUBLE. . . "

What follows is not the result of any "covert operation," any surreptitious examination of psychological files. What follows is merely one reporter's observations about people—in this case, some of the people who head-up railroad unions. Begin with UTU's Al Chesser: Bold, and more than a little imaginative. . . a man who knows, from all his years in Washington, (1) What leverage is and how to apply it, and (2) the value of compromise if you ever hope to get anything done. Then, BRAC's Les Dennis: Dogged and determined, but not averse to a decent compromise. . . a man whose union has survived the computer-revolution in good shape. Then, the leaders of the BLE, Charles Coughlin and now B.N. Whitmire: Very much their own men, as BLE is very much its own union. . . but also men who know what give-and-take is all about. And then, BMWE's Harold Crotty—a man difficult to "classify," except to say that he comes across as a rather low-key gentle man, but a man who has done his representational job as well as it could have been done in the face of adversity. A man whose theme song really might be "Nobody Knows the Trouble I've Seen."

Face it, over the years the Brotherhood of Maintenance of Way Employes has been hit as hard as any union—and, perhaps, harder than most—by mechanization and resulting job losses. Over the years, too, m/w employees have been low-men in terms of average annual earnings. If you put these two factors together, you might conclude that the presidency of BMWE is about as desirable a job as that of (as the old one-liner goes) social director on the Titanic—and just about as short-lived. Well, Harold Crotty keeps on running for office. And delegates to BMWE conventions keep embracing him. Earlier this summer, he was elected to his fifth consecutive four-year term as president. Maybe that's not a record for longevity, but it's certainly something a man can be proud of—and it's also worth noting that Crotty's standing as a person and the regard in which he's held by people on the other side of the table do not suffer by comparison.

### AN ELDER STATESMAN—WHO'S STILL LOOKING AHEAD

At the '74 BMWE convention, Crotty told delegates that "For the first time in the history of the industry, there has been a serious and genuine effort made by management and labor to work together in matters of mutual interest. . . an honest effort to help each other and by so doing to serve the best interests of the employees, the stockholders and the community." He said he felt optimistic that "for the first time in this century we have the necessary imagination on the part of management and labor to build an industry that is going out and fighting for the available transportation business." He talked about employment opportunities (and, in fact, in the most recent month for which figures are available, m/w employment was up by a higher percentage than was any other category, month-to-month and year-to-year). If his assessments are right, he said, "management and government can be assured of the complete and continuing support of the BMWE." Assuming Harold Crotty's sincerity—and nobody has ever challenged it—well, you've just got to respect a man like that.

# Loan-guarantee bill gains in Congress

The prospects for enactment this year of legislation that would provide Federal loan guarantees for $2 billion in railroad improvements are now brighter than they have been for months.

The House Commerce Committee on Sept. 19 voted a surface transportation bill that is generally acceptable to the carriers and wholly acceptable, according to White House sources, to the Ford Administration. In addition to the loan guarantees, which would apply to both track and equipment improvements, the bill contains some deregulation provisions strongly urged by the Administration. These would, briefly, limit the powers of rate-making bureaus; restrict the authority of the Interstate Commerce Commission to suspend a rate if the applicant railroad could establish that it had invested at least $1 million in a new service; limit the powers of the ICC to suspend rate changes within 7% of these which prevailed on Jan. 1, 1974; require railroads to charge compensatory rates; and prohibit discriminatory taxation of railroads at the state level.

What the bill doesn't contain—and this is of particular interest to railroad suppliers—is a provision that would have, in effect, given local unions the right to veto the contracting-out of any work performed with money covered by the Federal loan guarantees. Such an amendment was proposed by Committee Chairman Harley Staggers (D.-W.Va.) at the request of labor interests, and voted down 13-11.

The bill, which is called the Surface Transportation Act of 1974 and is designated H.R. 5385, was described by its chief sponsor, Congressman Brock Adams (D.-Wash.), as "the culmination of four years of work." Adams was also an architect of the Regional Rail Reorganization Act of 1973.

The full House was expected to vote on the bill late in September. If approved by the House, as expected, the bill will probably go to a House/Senate conference committee. Last year the Senate approved a loan-guarantee bill without the deregulatory provisions. If a bill comes out of conference with the deregulatory provisions mostly intact, White House approval is thought to be almost certain.

Meanwhile, the House has approved H.R. 15301, designed to protect the Railroad Retirement system from insolvency (RA, Aug. 12, p. 10), with only 10 dissenting votes. A Senate vote on an identical bill was also expected to pass with a substantial margin—enough, observers believed, to insure an override in the event of a threatened veto.

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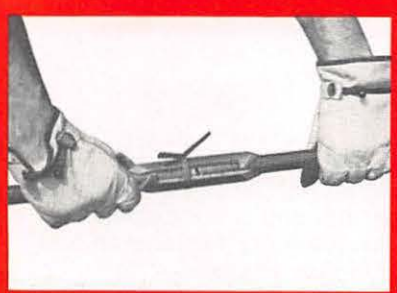
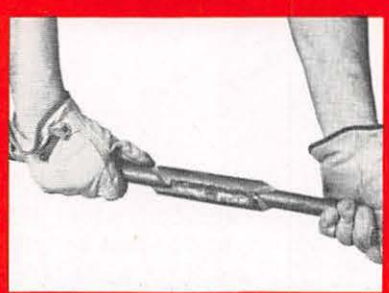


Cut out worn section of rod. Cut new piece of rod stock approximately same length. Cover joint with set of Buffalo Connectors. Hold in place with "twist-tie" supplied.



Fillet weld between the Buffalo Connector set and the rods. Resulting splice develops full strength of original rod.

**The Buffalo Connector . . . What it is . . .**
The Buffalo Connector consists of two pieces of heavy pressed steel which are used to repair broken, bent or worn freight car brake rods. They can also be used to alter the length of brake rods. The Buffalo Connector acts as a splint around the ends of two rods and when welded into place, they form a joint that develops the full strength of the original rod. Tapered ends avoid risk of hang up on a carrier or structural member.

**Money-Saving Advantages**
Gets cars off rip tracks faster, avoids clogging limited track space with cars waiting for repair parts, avoids large rod inventory, reduces need for new rods through salvage of useable portions of damaged rods, uses standard welding equipment.

*Reference A.A.R. Circular D.V. 1817

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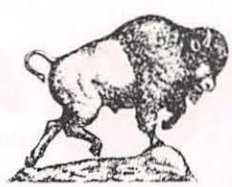

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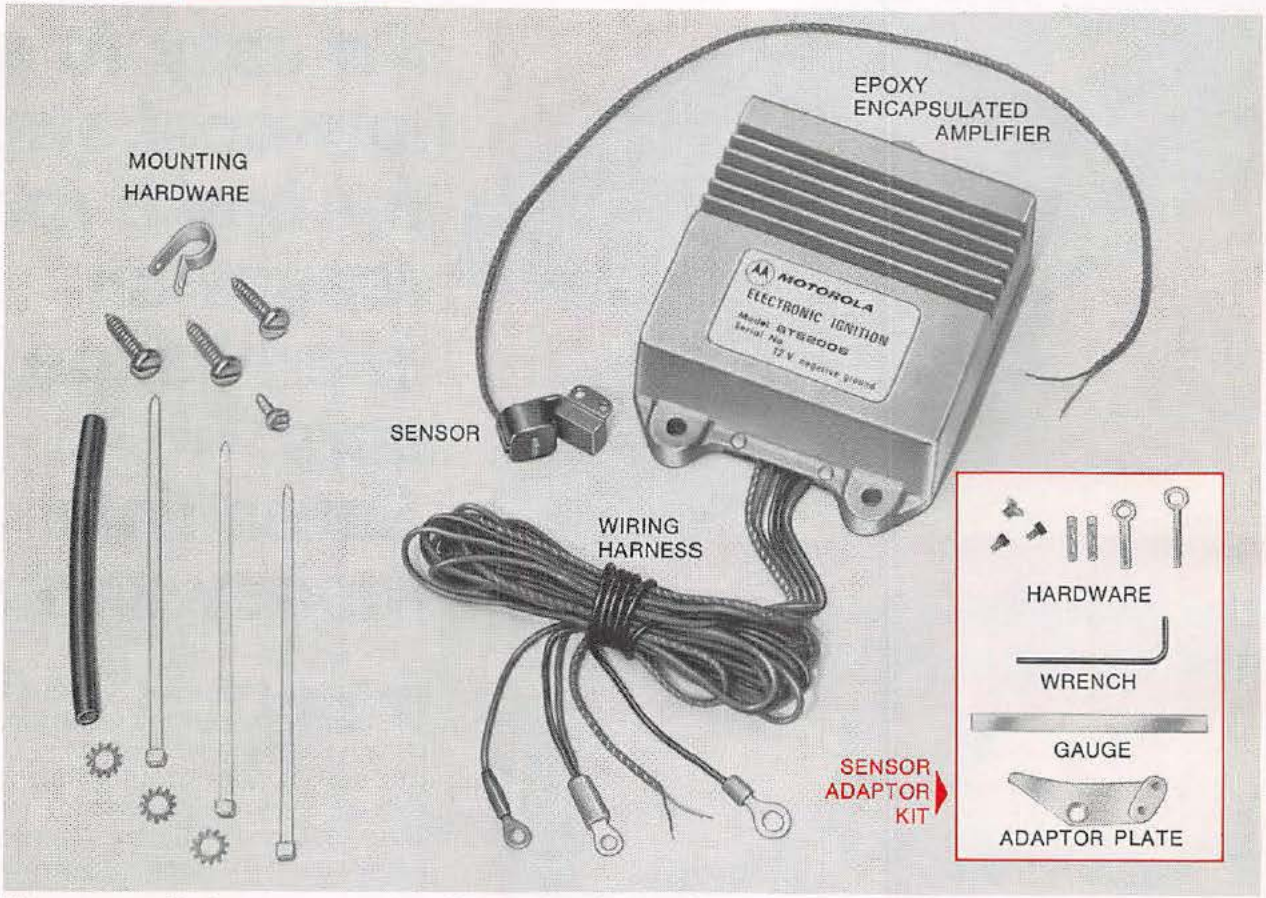


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System consists of an amplifier-sensor package and a separate sensor adaptor package. Ask about Kit No. 6SK2026.

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Motorola also produces electronic alternators, regulators, integral charging systems, speedometers, tachometers, hour meters and battery testers.

Circle 8 on Reader Service Card

# Mopac will haul trash, power plants will burn it

It should come as no news to anybody running a city or an apartment building or even a home, that garbage collection and garbage removal and garbage disposal is big business. The problem seems to be that Americans produce garbage faster than it can be handled, and railroads—a goodly number of them—have advanced plans for lending a hand with the problem. But, where many have come forward, most have not been chosen. Now, though, Missouri Pacific is going to start hauling the stuff—not to some "sanitary landfill" where it will remain buried until decomposition, but to an electric-utility generating plant which will burn it.

This is believed to be a "first"—generation of electric power from refuse, to an efficiency-level at which power-company officials say that the average family's trash will provide enough energy to generate about 25% of its electrical-power needs.

The power company is Union Electric; its investment will be about $70 million; its concept for waste-disposal and power-generation is now expected to be operational by the middle of 1977.

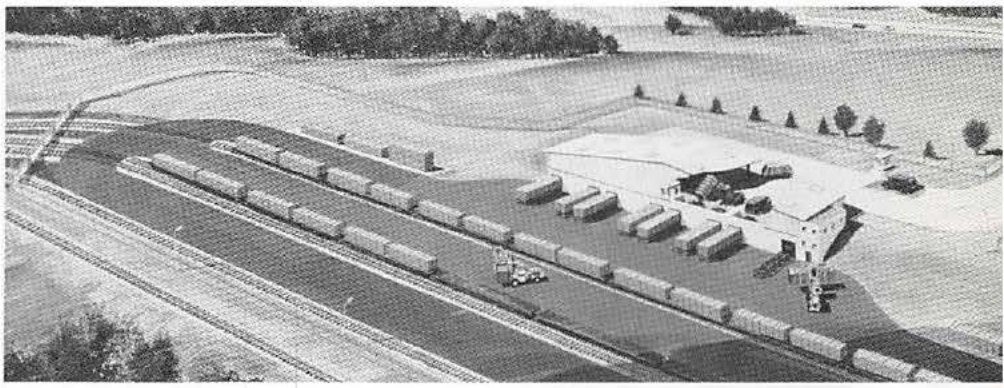
MoPac will be the mover, hauling compacted refuse in 40-foot containers from the St. Louis area to two power plants 20 and 40 miles respectively from the city. The daily haul is estimated at 8,000 tons, and trains will run from seven collection-centers which Union Electric will build in St. Louis.

The concept itself has been under test for about two and a half years, on a small scale, with highway equipment used to haul away the compacted refuse. In full operation, rail operation, refuse from public and private scavengers will be compacted and loaded into 35-ton-capacity closed containers for the rail movement.

At the power plants, a reclamation process will come first—a process designed to recover for recycling the metal and glass in the waste material. Refuse will be shredded in hammermills, then dropped into wind tunnels for gravity separations. How much can be reclaimed? In the pilot project, an average of 150 pounds of steel came out of every ton of waste material.

After the reclamation step, the remaining combustible waste will be burned in a mixture with coal—with, it is estimated, two pounds of waste replacing one pound of coal.

And, unlike many commodities railroads move, refuse is steady. As MoPac points out, "solid waste is a massive, non-seasonal commodity. It's there every day. Every human being generates five to six pounds daily—nearly a ton a year—and the total is expected to increase as the population grows and the standard of living improves."



**AREA COLLECTION CENTER**, where trash will be brought in and loaded into containers, is depicted in artist's conception.

Benefits? There seem to be quite a few. The general public ought to get more dependable refuse pickups. Taxpayers may be able to avoid further increases in refuse-collection costs. Refuse-collection agencies, public and private, should see costs coming down because the collection centers will involve fewer miles of driving back and forth than do now-used landfill locations. The environment should get a boost, since landfill methods can endanger ground water supplies. Energy conservation should get a boost, since a new source of fuel will be made available. The utility has economics going for it: This new fuel-source would come at, actually, a nominal cost, and "private and public haulers would pay a dumping fee at collection centers to offset operating expense. After extracting recyclable materials, metal and glass, for resale to manufacturers, the utility has a fuel source equal to half of the heat value of coal."

And for the railroad? New traffic, profitable traffic—with the potential for territorial growth. Once somebody proves it can be done, as MoPac notes, "solid-waste disposal systems may be developed in other major cities, including Kansas City, Houston, Fort Worth, Dallas, Memphis, San Antonio, Chicago and New Orleans."

# Hartke proposes roadway takeover

Senator Vance Hartke (D.-Ind.) has introduced legislation to create an Interstate Railroad Corp. that would "take over, rehabilitate, maintain, and finance a national railroad track system but allow present carriers to remain in private ownership." The bill is co-sponsored by Senator Lowell P. Weicker (R.-Conn.)

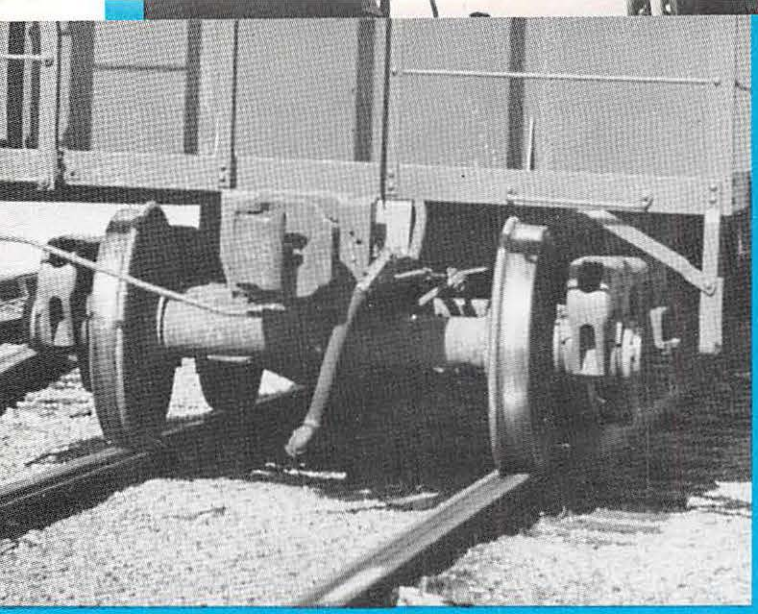
Hartke said the proposal would give railroads some of the same benefits long enjoyed by other modes of transportation.

"As transportation policy has evolved in the United States, increasing subsidies have been given to every mode of transport but rail," said Hartke, who is chairman of the Senate Surface Transportation Subcommittee. "Aside from the original land grants to the western roads, there has been little in the way of government subsidies for rail transport in more recent years. Today we are seeing, all too painfully, the results of that inequality of treatment."

Hartke noted that the Federal Railroad Administration had recently ordered the temporary closing of some 450 miles of line in Indiana: "Amtrak passenger trains have had to be rerouted. In fact, one of these trains, the James Whitcomb Riley, has now been rerouted three times because of continual deterioration of trackage throughout my state."

But the problem is national, not regional, he emphasized: "It is a relatively well known fact, for example, that passenger trains throughout the nation routinely maintained faster schedules in 1940 than they are able to do today. The Subcommittee on Surface Transportation. . .recently held hearings and received testimony that the United States has the worst maintained rail system of any major industrial country in the world."

The legislation which Hartke has introduced would not make the transfer of trackage to the new corporation mandatory. But carriers deciding not to join would be required to maintain their trackage to standards specified by the legislation.



Freight-car trucks

Track structure

100-ton cars in long trains has apparently demonstrated that conventional track-maintenance practices are not optimum to insure long, stable-track survival under even-higher traffic loads, on an individual-car, individual-train and aggregate-traffic basis. A re-examination of the problem of contact stresses between the rail and the wheel and its implications in terms of both car and track design is urgently required. It's anticipated that the AAR will begin work on this problem in the near future, but a broad-based attack will probably be necessary to insure a proper cost/benefit relationship between equipment and track under a variety of operating circumstances. The track/train dynamics program can be expected to contribute some insights toward rational approaches to this problem, although it will not handle all details."

—As AAR researchers see things, "the conventional freight-car truck is subject to a variety of problems in service that are becoming more serious with the passage of time and change in operating practices. Truck hunting, which results in excessive component wear and in derailment tendencies, has been of increasing moment to the industry. The stability of ride in relationship to dynamic forces and loss-and-damage has been a matter of increasing concern." A number of premium trucks have been designed, AAR notes, but "few of these have been clearly demonstrated to have an economic advantage to the degree that railroads have made major investments in them. However, increasing attention toward improving the design of the freight-car truck is undoubtedly desired, and FRA has announced plans to contract with Southern Pacific for work in this field (RA, July 29, p. 8). This action can make a significant contribution but may need to be augmented by other programs as well as by work in progress on track/train dynamics."

—How about track structure? "Conventional structure, subgrade, ballast, ties and rail, has made a very good contribution to railroad operation over more than 100 years. But, with the increasing demands being made on track, to carry long and heavy trains, existing designs appear to lead to unexpected problems. Research in progress may contribute toward some basic improvements in conventional track structures. However, even more aggressive efforts to find new approaches to the design of track may be necessary. While the so-called Kansas Test Track revealed initial deficiencies in details of its design, continued testing of the slab and beam track-support structures can contribute knowledge necessary in guiding the selection of improved track structure design practices."

—On the human-element side, there is no doubt that the locomotive engineer is a key man; AAR calls him "a critical element of the train-operating system." Track/train dynamics studies "have indicated the potential for presentation of the dynamic behavior of the train to the engineer. Continued attention to an improved locomotive cab and to the improved presentation of information to the locomotive engineer should make possible major improvements in train-handling with reduced lading and equipment damage and reduced derailment tendencies. While some of this work is in progress, it can be pursued on an expanded basis with early potential advantages to the industry."

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● **On the operating side...** Then, of course, there are R&D aspects with strong and direct ties to management of the operation:

—The industry, Dr. Harris declares, "needs an improved freight-car information and management system. Work directed toward TRAIN II will be pursued and this system will provide a second-generation system."

—As an adjunct to this kind of management-information system, "automatic car identification has very great potential for use, especially if the accuracy of reporting is increased. Whether this can be done with an optical system is now the subject of intensive study by the industry. Actions taken to insure improved label maintenance can be evaluated in the next year or two in an effort to ascertain whether the present aci system will achieve the level of reliability of more than 95% originally specified as a requirement for the system in order to have the potential for significant contribution in the location of equipment. To the degree that alternative and new systems are required, work should be started in the near future to insure that the industry will have in hand the necessary technology to consider a second-generation system. A period of many years will be required in which to seek out the basis for improvements and to evaluate them sufficiently, and studies toward this end can be expected in the near future. However, no new aci system is likely to emerge for several years. And, therefore, efforts directed toward effective utilization of the pres-

# Mopac will haul trash, power plants will burn it

It should come as no news to anybody running a city or an apartment building or even a home, that garbage collection and garbage removal and garbage disposal is big business. The problem seems to be that Americans produce garbage faster than it can be handled, and railroads—a goodly number of them—have advanced plans for lending a hand with the problem. But, where many have come forward, most have not been chosen. Now, though, Missouri Pacific is going to start hauling the stuff—not to some "sanitary landfill" where it will remain buried until decomposition, but to an electric-utility generating plant which will burn it.

This is believed to be a "first"—generation of electric power from refuse, to an efficiency-level at which power-company officials say that the average family's trash will provide enough energy to generate about 25% of its electrical-power needs.

The power company is Union Electric; its investment will be about $70 million; its concept for waste-disposal and power-generation is now expected to be operational by the middle of 1977.

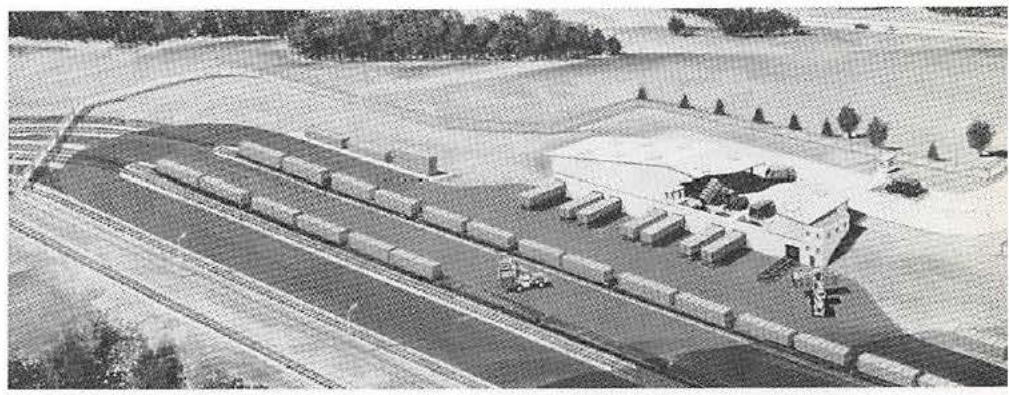
MoPac will be the mover, hauling compacted refuse in 40-foot containers from the St. Louis area to two power plants 20 and 40 miles respectively from the city. The daily haul is estimated at 8,000 tons, and trains will run from seven collection-centers which Union Electric will build in St. Louis.

The concept itself has been under test for about two and a half years, on a small scale, with highway equipment used to haul away the compacted refuse. In full operation, rail operation, refuse from public and private scavengers will be compacted and loaded into 35-ton-capacity closed containers for the rail movement.

At the power plants, a reclamation process will come first—a process designed to recover for recycling the metal and glass in the waste material. Refuse will be shredded in hammermills, then dropped into wind tunnels for gravity separations. How much can be reclaimed? In the pilot project, an average of 150 pounds of steel came out of every ton of waste material.

After the reclamation step, the remaining combustible waste will be burned in a mixture with coal—with, it is estimated, two pounds of waste replacing one pound of coal.

And, unlike many commodities railroads move, refuse is steady. As MoPac points out, "solid waste is a massive, non-seasonal commodity. It's there every day. Every human being generates five to six pounds daily—nearly a ton a year—and the total is expected to increase as the population grows and the standard of living improves."



**AREA COLLECTION CENTER,** where trash will be brought in and loaded into containers, is depicted in artist's conception.

Benefits? There seem to be quite a few. The general public ought to get more dependable refuse pickups. Taxpayers may be able to avoid further increases in refuse-collection costs. Refuse-collection agencies, public and private, should see costs coming down because the collection centers will involve fewer miles of driving back and forth than do now-used landfill locations. The environment should get a boost, since landfill methods can endanger ground water supplies. Energy conservation should get a boost, since a new source of fuel will be made available. The utility has economics going for it: This new fuel-source would come at, actually, a nominal cost, and "private and public haulers would pay a dumping fee at collection centers to offset operating expense. After extracting recyclable materials, metal and glass, for resale to manufacturers, the utility has a fuel source equal to half of the heat value of coal."

And for the railroad? New traffic, profitable traffic—with the potential for territorial growth. Once somebody proves it can be done, as MoPac notes, "solid-waste disposal systems may be developed in other major cities, including Kansas City, Houston, Fort Worth, Dallas, Memphis, San Antonio, Chicago and New Orleans."

# Hartke proposes roadway takeover

Senator Vance Hartke (D.-Ind.) has introduced legislation to create an Interstate Railroad Corp. that would "take over, rehabilitate, maintain, and finance a national railroad track system but allow present carriers to remain in private ownership." The bill is co-sponsored by Senator Lowell P. Weicker (R.-Conn.)

Hartke said the proposal would give railroads some of the same benefits long enjoyed by other modes of transportation.

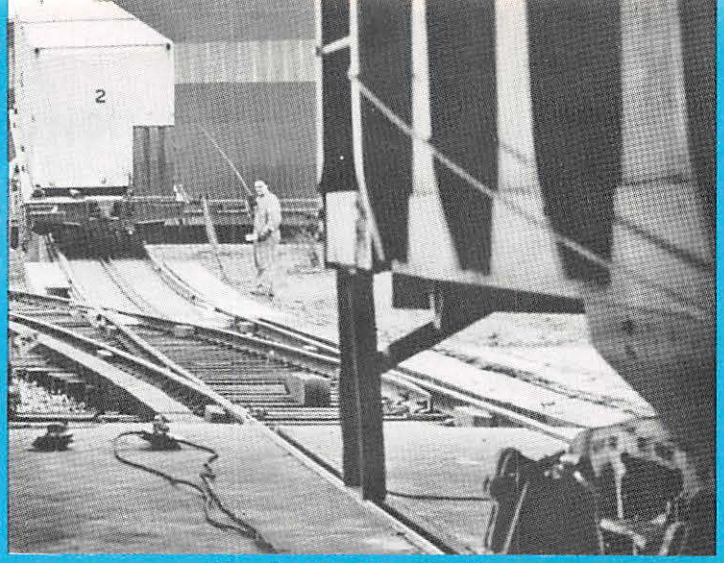
"As transportation policy has evolved in the United States, increasing subsidies have been given to every mode of transport but rail," said Hartke, who is chairman of the Senate Surface Transportation Subcommittee. "Aside from the original land grants to the western roads, there has been little in the way of government subsidies for rail transport in more recent years. Today we are seeing, all too painfully, the results of that inequality of treatment."

Hartke noted that the Federal Railroad Administration had recently ordered the temporary closing of some 450 miles of line in Indiana: "Amtrak passenger trains have had to be rerouted. In fact, one of these trains, the James Whitcomb Riley, has now been rerouted three times because of continual deterioration of trackage throughout my state."

But the problem is national, not regional, he emphasized: "It is a relatively well known fact, for example, that passenger trains throughout the nation routinely maintained faster schedules in 1940 than they are able to do today. The Subcommittee on Surface Transportation. . .recently held hearings and received testimony that the United States has the worst maintained rail system of any major industrial country in the world."

The legislation which Hartke has introduced would not make the transfer of trackage to the new corporation mandatory. But carriers deciding not to join would be required to maintain their trackage to standards specified by the legislation.

Coupling systems



Nondestructive testing

# Railroads mount widening R&D attack

By GUS WELTY, Senior Editor

*Question: Mr. President, you have told me to ask not what my country can do for me, but to ask rather what I can do for my country. Mr. President, what can I do?*

*Answer: More.*

Now, re-paraphrase that Q&A from the years of JFK. Question: What kind of research in railroading should be done?

Answer: More.

And, unfortunately, for too many years, railroad research needs were no better-defined than that: Railroading needed "more" research.

But what exactly was happening in railroad R&D up until, say, 1970?

—At the AAR level, "research" didn't really mean research. It meant testing, the testing of products to make sure they would last a thousand years (and if that's an exaggeration, make the most of it).

—At the individual-railroad level, true research (in both the pure and the applied sense) was a spotty thing. Research costs money. Few roads had the money to make a large-scale research commitment.

—Government? Government wasn't interested.

—Suppliers carried much of the load, and many technological advancements came to railroading from the outside (the diesel-electric locomotive being perhaps the prime example). At the same time, understandably, supplier research was largely of a proprietary nature.

—Philosophically, railroads simply did not seem ready for a comprehensive R&D effort. Even though most roads had long ago lost the in-house capability for locomotive and car design and development, some still clung to the old NIH syndrome (which stands for Not Invented Here).

How about today? Today, things are a lot different. The budget for the AAR's Research and Test Department has grown from a paltry $800,000 in 1971 to a somewhat more respectable $2.1 million in 1974. Government, through DOT/FRA, is definitely interested—and if visitors to the High Speed Ground Test Center at Pueblo, Colo., still come away bemused at the amount of time and money being devoted to passenger-oriented work, they should also realize that Pueblo is and will be something far more than a center run for the benefit of Amtrak, a few rapid-transit systems and the train-and-transit riders of America. Suppliers are not neglecting R&D in proprietary areas, and at the same time they are showing a gratifying interest in cooperative R&D programs. Rail labor is participating, in key areas where labor is directly involved—areas more operational than strictly-technological in scope. Over-all, it is estimated that cooperative programs supervised by the AAR and including participation by a variety of government and private organizations involve an expenditure for the year of about $8 million. The figure is still probably too low. But it's a big improvement from estimated totals of only a few years ago.

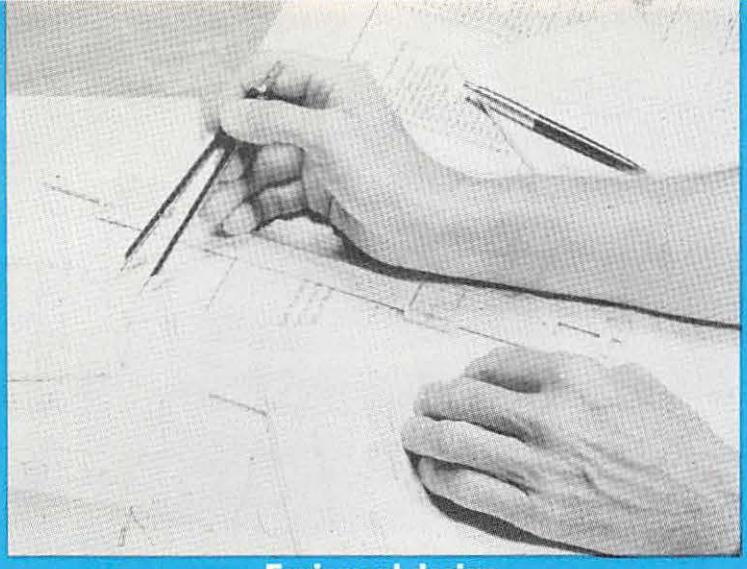
● **What makes R&D work.** Of course, research-and-development in the railroad industry operates under certain built-in handicaps. Railroads are a system, and compatibility of equipment is perhaps the biggest single factor in making the "system" work. Since equipment earns only when it's moving under load, equipment has to be designed for minimum maintenance—and this, for better or for worse, connotes design and construction also for long life. "Change" in any bold technological sense in railroading almost never happens overnight; in some instances, as with dieselization, it happens over a relatively short span of years; and in some instances it may take decades.

In past years, railroad R&D has been more than a little haphazard. What there was of it seemed to lack direction. Now, at least, AAR's Research and Test Department—under direction of Vice President William J. Harris, Jr.—has what a recent President might have called a "game plan." AAR knows where R&D efforts ought to be pointing, and it has identified about a dozen major areas. Their briefest labels:

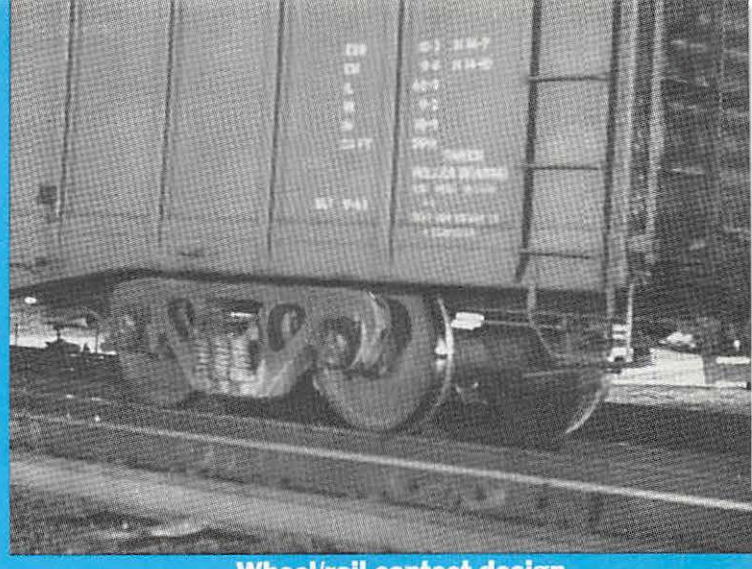
—An improved coupling system.
—Nondestructive testing.
—Equipment design.
—Wheel/rail contact stresses as related to design.
—The freight-car truck.
—Track structure.
—Locomotive cab improvement.
—Electrification, and its compatibility with signal and communications systems.
—Car information and management.
—Automatic car identification.
—Improved car utilization.
—Improved marketing-study methods.

That's a list that covers just about all major technological areas involved in railroad operation and spills over into the design of the transportation product itself. It's a list, R&D people are convinced, which railroads will have to check-off if the industry is to meet (1) future transportation demand, and (2) its own potential.

● **It takes time.** In looking ahead, AAR's Bill Harris does not underestimate the R&D problems. As he points out, the industry has a large fixed plant and very substantial investments



Equipment design



Wheel/rail contact design

# in 12 key problem areas

"in the freight-car fleet and in locomotives, extensive investments in signal systems, and a work force made up of individuals who very often have worked only in the railroad industry. While these factors contribute to the strength of the system, they make change very difficult. If the perfect freight car were invented now, and all new equipment were of the new design, it would take on the order of 20 years before half of the fleet represented the new design." That pattern, Dr. Harris points out, has been the pattern for conversion to roller-bearing trucks: Before the entire freight-car fleet is equipped, more than 40 years will have passed since the introduction of the first freight-car roller bearing.

Further, "if a new device to improve a car is developed and designed, for example one that would permit a much more effective coupling operation to be performed, unless that device is compatible with all existing equipment it cannot be utilized in general interchange. It will have a much smaller impact on the behavior of the freight-car fleet as a whole than a compatible system. However, the requirement for compatibility may put excessive constraints on design and reduce the effectiveness of a new coupling system to a marginal level if compatibility is demanded." By the same token, Dr. Harris says, "if the perfect rail were invented at any given time, it would be from 20 to 30 years before more than half of the rail were of the new and improved characteristics."

Thus, "the durability of the railroad plant and equipment and the experience of its staff reduce the feasible rate of acceptance of change. The railroad industry research program must be geared to this rate and not accelerated to a level that will present it with new improvements at intervals substantially more frequent than those that can be effectively utilized.

"Research on operating practices may not lead to major capital requirements and, therefore, its results may be applied with greater facility. But, these applications do require extensive and intensive training commitments, so as to bring about acceptance and utilization by employees deeply experienced in running a railroad."

● **The best minds?** A definite problem, though, is that "a research program with objectives circumscribed by a constrained rate of utilization is not likely to attract the most innovative groups in the research community. What is offered to the industry may be less attractive than what the very best minds in the country could have produced."

There is, Dr. Harris concedes, "no easy solution to this problem. From the standpoint of good research, a program must be larger than can be narrowly justified on an equipment- or track-replacement basis. This may provide a very effective and proper role for government to insure that, in the national interest, innovation occurs at a somewhat more rapid rate than can be economically justified by the industry. However, in view of the intimate relalationship between government activities and research and the regulatory function of government, great care must be taken to insure that, simply because government invents a new system, that new system will not be forced in an uneconomic way on the industry in the name of, for example, improved safety."

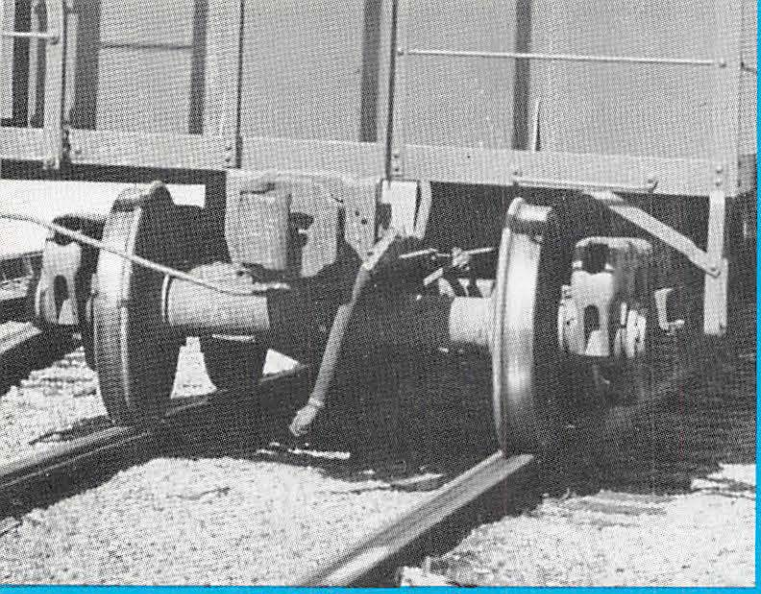
What does AAR see as R&D needs? Consider first those in the technical or technological area:

—First, Dr. Harris observes, "an advanced coupling system would probably be of significant value to the industry in terms of improving operations at a number of levels." Work in this area was to get under way this year, "but it needs to be pursued vigorously and effectively."

—A reduction in the incidence of equipment-failure "requires a very significant improvement in nondestructive-testing techniques. The science and technology associated with these devices is beyond the capability of the railroad industry to support. Therefore, other industries and government will be expected to bring about the advances in the science of nondestructive testing, to a level at which the railroad industry can adapt them for use in improved track and equipment inspection practices."

—Design of freight cars "has now been undertaken with a view toward insuring their effective operation in high-mileage service. Too much of the railroads' limited resources is required for maintenance of equipment in these uses." At the same time, "lack of adequate insight into life-cycle costing of equipment and of track structure makes it quite difficult to justify a higher purchase price on initial equipment which would reduce system cost through reduced maintenance costs. A combination of analytical and technical approaches toward insuring that the industry will be in a position of designing equipment to satisfy demanding service requirements is required."

—So far as the dynamic environment of train and track is concerned, that is being looked at in the first phase of the track/train dynamics program, and "aggressive use of these findings in the design of improved track structures and equipment will be pursued." But investigatory work should go farther. As Dr. Harris notes, "Increasing utilization of



Freight-car trucks

Track structure

100-ton cars in long trains has apparently demonstrated that conventional track-maintenance practices are not optimum to insure long, stable-track survival under even-higher traffic loads, on an individual-car, individual-train and aggregate-traffic basis. A re-examination of the problem of contact stresses between the rail and the wheel and its implications in terms of both car and track design is urgently required. It's anticipated that the AAR will begin work on this problem in the near future, but a broad-based attack will probably be necessary to insure a proper cost/benefit relationship between equipment and track under a variety of operating circumstances. The track/train dynamics program can be expected to contribute some insights toward rational approaches to this problem, although it will not handle all details."

—As AAR researchers see things, "the conventional freight-car truck is subject to a variety of problems in service that are becoming more serious with the passage of time and change in operating practices. Truck hunting, which results in excessive component wear and in derailment tendencies, has been of increasing moment to the industry. The stability of ride in relationship to dynamic forces and loss-and-damage has been a matter of increasing concern." A number of premium trucks have been designed, AAR notes, but "few of these have been clearly demonstrated to have an economic advantage to the degree that railroads have made major investments in them. However, increasing attention toward improving the design of the freight-car truck is undoubtedly desired, and FRA has announced plans to contract with Southern Pacific for work in this field (RA, July 29, p. 8). This action can make a significant contribution but may need to be augmented by other programs as well as by work in progress on track/train dynamics."

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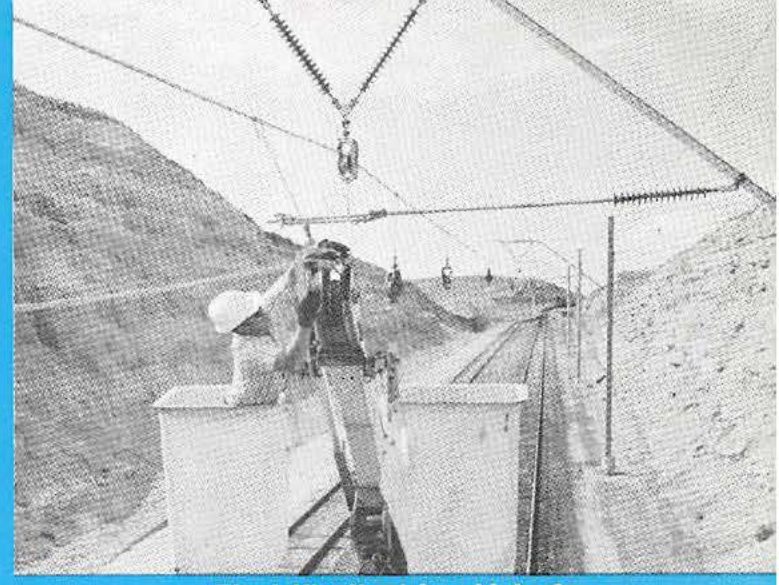
Locomotive cab improvement



Electrification/signal interface

ent system are desirable in light of the investment made in that system and the need for more complete demonstration of the use of aci before an industry commitment to a new system is likely to emerge."

—AAR talks of a broader perspective in which the railroads, looked at as a production function, may find a different way to structure the loading, movement and unloading cycle so as to maximize system effectiveness. Car utilization "is a matter of great concern to the industry. The industry is under substantial criticism from shippers and many governmental institutions, including the Congress and the Executive branch, for its failure to provide adequate service. Large capital costs are associated with a major expansion of the freight-car fleet, and substantial efforts toward improved car utilization will be initiated in the near future. These will be closely related to work already in progress on improved freight-car management-information systems. Work in the field of improved utilization could span a very broad range of activities, from mechanical reliability to work rules and from railroad scheduling and control practices to demurrage and shipper loading and unloading practices." Improvements and extensions of TRAIN II, Dr. Harris and his people believe, "will undoubtedly be required as the industry gains greater insight into the nature of the car-distribution and utilization problem."

—Finally, "continued study of the nature of the market for rail transportation may indicate important trends open to railroads for service that could require new kinds of equipment as well as different operating philosophies and practices. Until there is industry insight into the nature of trends in these markets, industry research on practices and facilities responsive in the national interest is not likely to emerge."

As for the paths that railroad-related R&D should take in the future, Dr. Harris has both reasoned and eloquent comments:

"It is no longer adequate to consider railroad research as a unified or single homogeneous area of activity. Certainly, in talking of future trends and activities, railroad research should be divided into several sub-parts. At the very least, studies of physical materials, their combinations and performance should be considered as separate from research that examines institutions or organizations and their respective behavior. Lastly, there is the kind of research that studies the way individuals, organizations or institutions employ the material and components and resources that are the products of the first kind of research."

● **The law and the market.** Government regulation and involvement, "brought on by social concerns and awareness and by the nature of government itself, will continue and probably increase in both extent and depth and, therefore, require continuing change within the railroad industry. At the same time, markets for transportation in terms of commodities and locations will change as dictated by basic economics, by social trends and by the combination of expansion, contraction and shifting of resources.

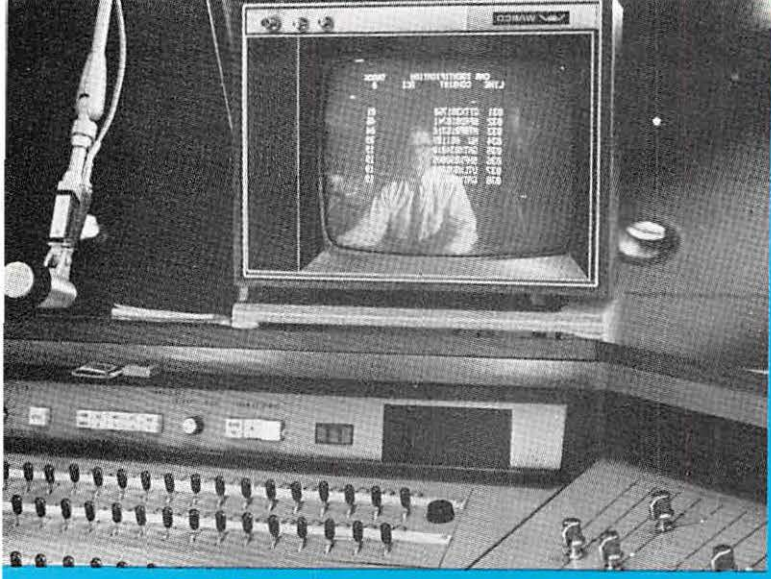
"There are similar forces to be considered which are internal to the industry. Mergers, abandonments, new construction and consolidations are changes which affect the remainder of the industry almost as much as they do the railroads making them. Modifications to corporate structures and, most important of all, changes in the personalities managing and running the industry, its labor organizations and closely-related institutions dramatically affect and alter the shape and posture of the industry. All of these react and interact, respond to change and in turn cause change.

"Research and change are tightly interwoven. Change stimulates research. Research brings about change and research attempts to anticipate change. If the world ahead is full of change for the railroad industry, then the research community can expect and anticipate its full share of challenges."

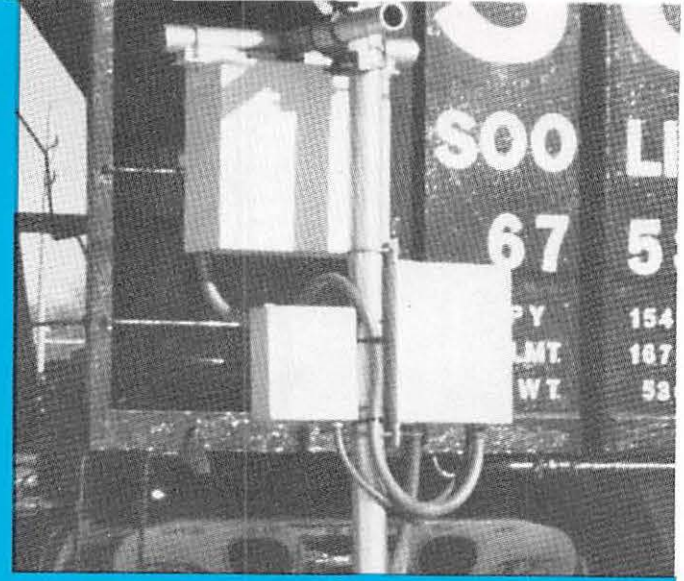
What kind of challenges? Quite possibly, different ones—though some of the old handicaps to research will inevitably remain. As the AAR points out, most of its research is applied, rather than pure: "It is problem-oriented, and its intent is to find solutions to difficulties currently faced by the industry; to reduce the cost of operations, components and equipment considered excessive; to improve on the reliability of equipment, components and operating techniques, and to improve upon general effectiveness and efficiency."

Of course, there are limitations and weaknesses to traditional applied research and "probably the most severe of these involves time. If a problem must surface in a system as complex as railroad transportation before the industry starts the search for its solution, the problem has the opportunity to develop, spread and raise potential havoc. The industry then must at least—at the very least—tolerate the difficulty until the solution is found. And most likely for some time thereafter. . . . Another critical limitation of traditional applied research has to do with the constraints imposed on solutions. That is, when one component of an existing sub-system is found to be problem-prone, the investment in the remainder of the system often precludes complete redesign of the system even if this would otherwise be the most economical course."

● **Think—and act.** In trying to offset these limitations, Research and Test does try to anticipate problems—to see if they can be avoided altogether, to prepare for them so that solutions are available, or to take whatever steps can be taken to lessen the impact. In this effort, Dr. Harris notes—with a great deal of logic on his side—that "having an



Car information and management




ACI

idea of where the industry is headed, even if that idea is hazy, permits all kinds of research to function far more effectively than if, as an alternative, it waits for a fire alarm, then investigates the nature of the fire and, lastly, then begins a hurried attempt to design a fire extinguisher to cope with the specific kind of fire it has found." And toward this end, "analytic efforts directed at prediction of future problems must lean heavily on a wide spectrum of inexact science such as economics, sociology, political science and statistics, and also on a fair amount of experience and imagination and some pure intuition."

AAR people have looked long and hard at what is happening in the country today, and its implications—involving such items as environmental concerns, energy problems, the high cost of money, and the opportunity for railroads to boost their share-of-market if they can improve service-quality. And the paths to be followed seem to be marked rather clearly: "Economic research in its various sub-classes will be expected to identify markets, establish true costs and establish appropriate rate structures. Operational research must determine methods, transportation and schedules. Physical research must provide appropriate plant and equipment and provide data for both economic and operational research. Because only through valid and appropriate research in these areas can the profitability of an increased share of the market be assured."

Where should this kind of research be directed? Toward better equipment utilization. Toward rate research which aims at determining how to get the rate-of-return needed to support the level of capital investment that will be required. Toward market research in which new and changing transport demands can be identified along with the effect investment and operational changes may have on these demands. Toward research on car-hire practices to determine how they may affect utilization and investment requirements.

● **The big-picture look.** In broad terms, what lies ahead? Dr. Harris has these observations of the past, present and future:

"Technological developments, even when proved economically attractive, can require long periods of time to become fully incorporated into the railroad system. The payback period for hardware improvement is, therefore, a long time. On the other hand, operational developments can be much more quickly exploited, and the payback can be almost immediate. In spite of this, industry R&D has been almost exclusively hardware-oriented—partly because operational research is a comparatively new discipline and because hardware development has an obvious tangible appeal to an industry which employs individual components in such large numbers.

"It appears, therefore, that technological research and engineering development—for at least the near future—must increasingly emphasize development of operational research to make up for lost time and to gain the immediate economic advantages available. This is not to say that hardware research should be ignored or even reduced. An industry so dependent upon such large amounts of structural and mechanical components must be dedicated to finding better materials, improved configurations and fabrications. Research in these areas must and will continue. But at the same time there must be new efforts to determine better ways to employ the hardware so developed. And both kinds of research will have to be done in such a way as to assure, on the one hand, their beneficial co-action and, on the other hand, that they do not become counter-productive nor make one another superfluous. The R&D of tomorrow will of necessity embrace economic, operational and physical-component aspects of the industry. It will not only consider the industry as a system but it will also of necessity employ the systems approach in its own structuring. Hardware research on fully automatic couplers, for example, must proceed hand-in-hand with operational research on train-makeup and industrial switching, and both will depend upon economic research to identify the markets where trains using such couplers should be used. Similarly, efforts to improve cross-tie design should be accompanied by industrial-engineering, machinery-development and operational research programs aimed at facilitating tie installation and track renewal.

"Component research will be somewhat refocused in another way. Traditional component research has been aimed at increasing life, improving wearability and reducing failure rates. Recently, a more systems-oriented approach has been used and increased emphasis has been placed on studying and understanding the interaction between components and sub-systems. In the future, we see this shift of emphasis continuing. Systems-oriented, cost-effective component research may not always be looking for longer life. In the ideal sub-system, it could be more desirable for all components to collapse at once, and because of obsolescence 'sooner' may be better than 'later.'

"Traditional component research was aimed at finding ways to extend life cycles through manufacturing modifications. Therefore, the industry has been restricted to incorporating research findings only in the components it buys new and has had to wait through the normal lifetime of previous designs before it could realize a benefit. Further, unless the new design has been extremely attractive, the industry has had to wait for previous designs with remaining life to wear out before the improvement could be fully exploited. But, component research can and should also look for ways to improve upon the life

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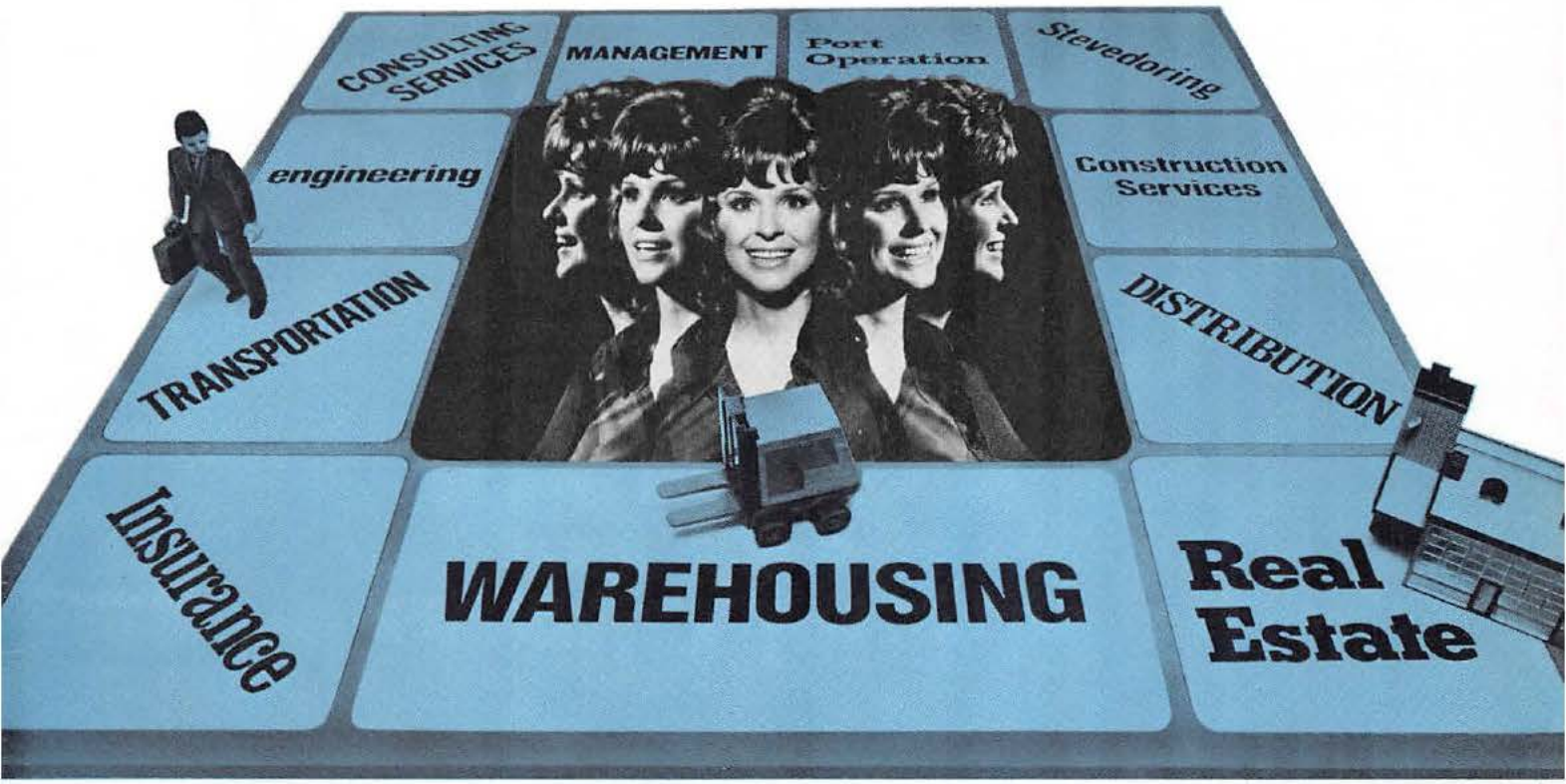


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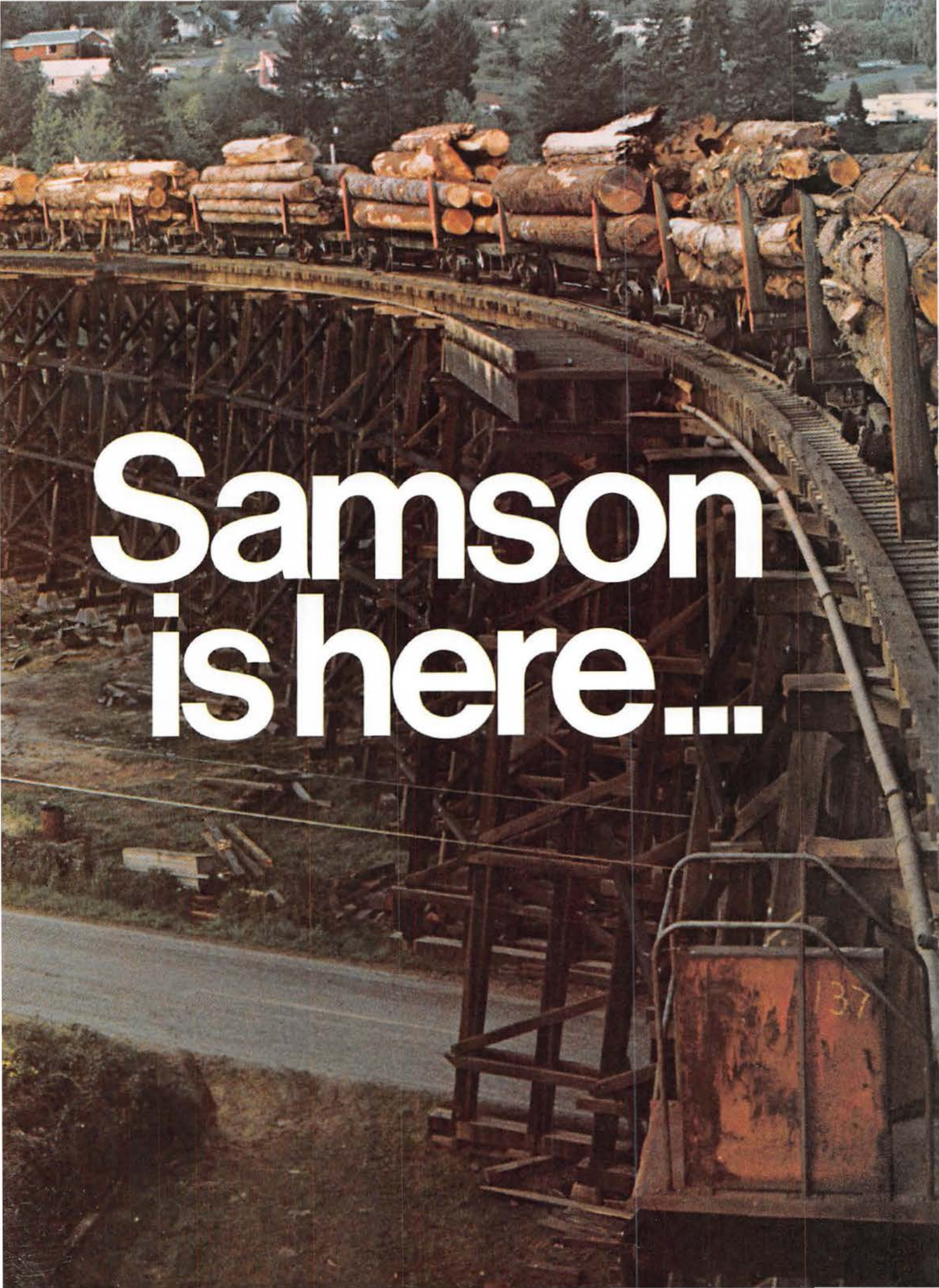
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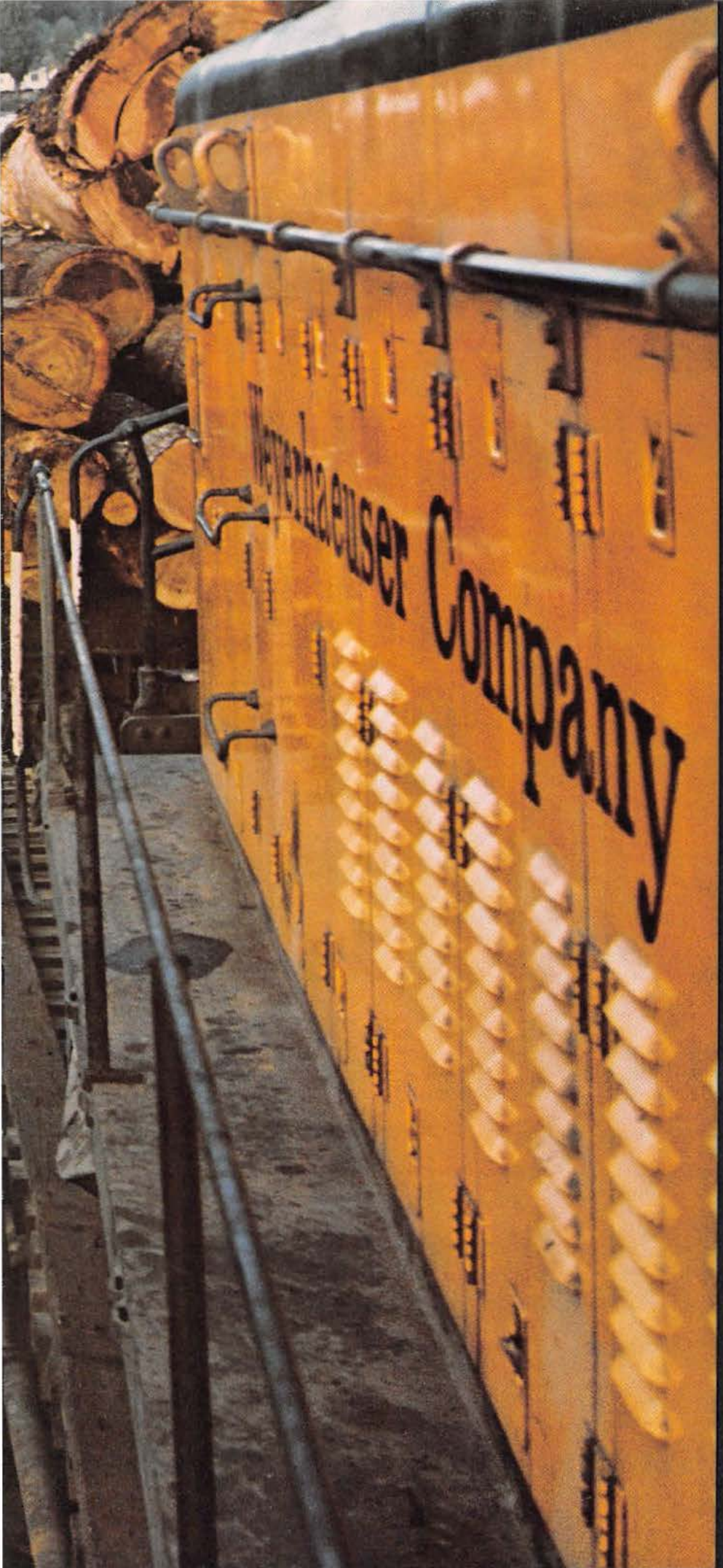


# to make sure your bridges aren't burning behind you.

The Weyerhaeuser Company planted 9½ million trees last season on the St. Helens high-yield forest, so you know they're concerned about right-of-way fires. On their run to Longview, Washington, they brake 68-car logging trains down a six-mile, four per cent grade, which results in a lot of sparks when standard metal shoes are used. But that's only one of the reasons why Weyerhaeuser has standardized on Samson high-phos brake shoes for freight cars.

After three years of testing (2490 trains) they found that shoe replacement was reduced from 6.74 shoes per train to 4.39 shoes per train—a saving of 33 per cent on shoes alone. Weyerhaeuser also reports savings in inspection time and labor by having to change fewer shoes per train.

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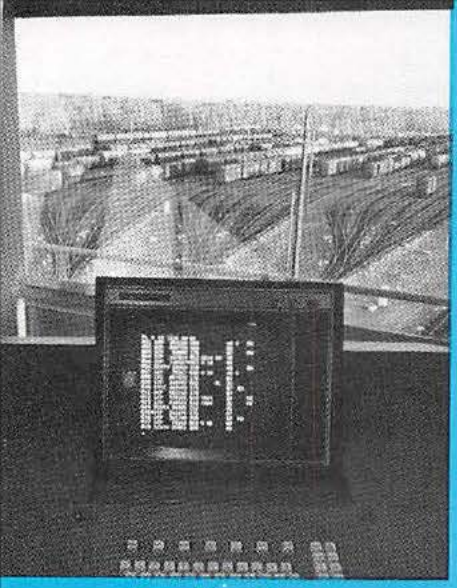


Car utilization

Marketing

expectancy and use-cost of designs already in existence. New operational practices and modifications to old ones can be identified through hardware research that will defer failure, lengthen life and reduce maintenance expense of many of the components now in service. When hardware research can identify a change to a practice or operation which extends the life of a component otherwise needing replacement in the near future, its payback is also in the near future."

● **Meeting traffic demand.** In looking ahead, researchers see three main categories of service into which rail-transportation demand may fall—unit-train movement of bulk commodities, intermodal service and carload service—and the forecast runs this way:

"Both unit-train and intermodal operations minimize terminal operating problems and lend themselves to high equipment utilization. Expansion of these services seems assured, since they can lead to higher profitability while offering attractive service and rates to the shipper. Carload traffic has been the largest part of traditional freight traffic and it offers flexibility that many shippers demand. But each of these carries with it a unique set of technological problems. Unit trains entail repetitive, high stresses for both equipment and track structure. Present piggyback cars present problems in dynamic stability when loaded, because of their length and high center of gravity; and when empty, because of their combination of geometry and low weight. . . . Carload traffic, on the other hand, presents a series of cost problems in connection with industrial switching, train makeup and switching at intermediate yards—not to mention its utilization difficulties.

"Technological challenges exist in each of these areas—and all offer significant opportunities for both cost reduction and revenue generation. But the problems are not the same and they quite probably will have dissimilar solutions. For example, while some kind of automatic coupler could greatly reduce the cost of handling individual carload traffic, in unit-train cars simpler and less sophisticated coupling systems might be sufficient. Unit-train operation, however, could justify certain more-expensive components than could operation of general-service, carload-oriented equipment."

How should tomorrow's research be conducted? Probably not via a traditional bureaucracy but rather through what has been termed an ad-hocracy—a term and a theory implying "that the rapidly-changing problems of the future can be dealt with only by teams of experts brought together to handle specific challenges and then disbanded to be regrouped in different ways to deal with subsequent difficulties. The ad-hoc principle is just as attractive to the railroad research community. . . . So, it appears that most sizable and significant inquiries will be conducted in an ad-hoc fashion by a collection of specialists bringing their respective expertise to bear on the multi-faceted problems they address. These teams will, at the same time, reflect support from a variety of interested institutions, including the railroad industry, government, the academic community, labor, the shipping sector and others as the need arises."

● **Money, money, money.** Who's going to pay? And how much? Dr. Harris recalls that the ASTRO report called for a 10-year, $100-million rail research program funded by the Federal government—this to be over and above research sponsored by railroads and their suppliers. But he emphasizes that there would be problems, if Federally-funded R&D were to be done unilaterally: "First, unless the research is done by the industry, it separates the researchers from the users, and rarely is applied research successful if those responsible for the inquiry are not at least indirectly responsible for its implementation. Second, if government spends large amounts of taxpayer money for projects in the public interest—as railroad research clearly is—it then feels the obligation to justify the expenditure through regulation. Such an approach tries to remedy a weakness in applied research—the waiting period required for implementation—through regulation rather than economics. Finally, the unilateral approach tends to lull the private sector into inaction—because, after all, why should private funds be spent to solve industry problems when public funds are available?"

On the other hand, problems of this sort can be eliminated or at least cut down to size "if the government research is done in conjunction with industry-funded research." And the amounts involved? "That there's need for $100 million in a Federal commitment to railroad research in the next 10 years cannot be refuted. That there's need for industry-sponsored effort to insure the efficiency of Federal spending should also be clear, and the magnitude of this effort is estimated to be on the order of $50 million. Supply-industry research, of course, is equally important."

The list of R&D questions seems to have no end. For instance, some of the ones Dr. Harris and his people are asking: "How should the rate structure be modified to insure the improvement in profitability which the industry needs? What kinds of freight cars are needed to serve what kinds of markets? What kinds of changes are needed in track to insure dependable movement of what kinds of trains? Do we need automatic couplers? Do we need them on all kinds of cars and must they be compatible with existing couplers? How can we forecast equipment needs by location for next week, next month, next year? How long should we build our freight cars to last? Where can we justify dedicated tracks for passenger traffic? How fast should what kinds of trains travel? How should we untangle terminal delays? Have all of these things been related to the environmental and safety desires demanded by society?"

And then naturally, there will be new problems—problems, no doubt, arising before the old ones are solved. But one thing seems sure, and Dr. Harris says it: "Most problems will be inter-disciplinary in nature, involving both technology and economics—and most problems and opportunities will be multi-institutional, demanding industry, government, labor and supplier cooperation."

# "An improved basis for change"

What do NASA's Marshall Space Flight Center, the White Sands Missile Range, DOT's High Speed Ground Test Center and Edwards Air Force Base have in common?

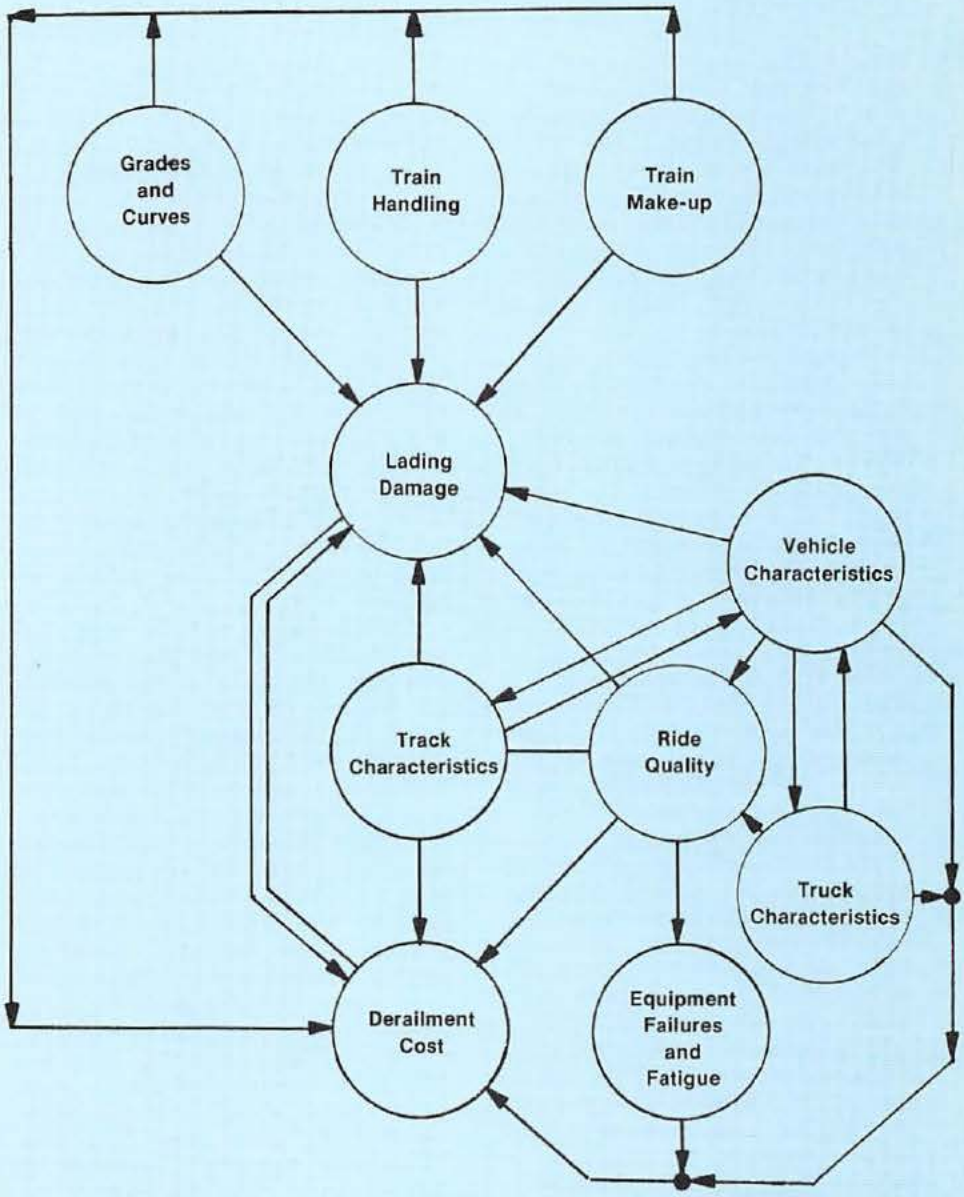
Right: They're centers for more-or-less exotic surface, air and space research.

Right, too: They're centers that have been used for research-program work by that old reliable form of transportation, the railroad. And tomorrow's railroading will be the better for this work, along with that being done at the AAR Technical Center in Chicago, at a score of universities and in facilities supported by dozens of railroads and supply companies.

The total program involves a lot of mundane, unexotic, undramatic effort—because, like it or not, the industry and its suppliers have to live with the fact that AAR approval of technological changes in many areas must be secured before such changes can be given even limited application. But, the total program also involves a research effort—with supplier cooperation mostly through the Railway Progress Institute and with government cooperation mostly through FRA—which can get pretty exotic, pretty dramatic. It's the kind of research that probably should have begun years ago, the kind that AAR would probably not have been instigating just a few years ago—and the kind that has been strongly promoted over the past two or three years.

● **An "improved basis."** The job-description of the AAR's Research and Test Department isn't complicated. Its function is "to introduce an improved basis for change in the industry." Its now-broader scope "is intended to respond to problems of safety, environment and transportation; to provide opportunities for significant improvements in transportation services offered by the industry; and to analyze these opportunities in terms that establish the economic effectiveness of the proposed solutions."

With a cooperative approach—including suppliers, government and individual roads—AAR has been able to mount a fairly comprehensive attack on R&D problems and at the same time to keep budget under control and avoid any real increase in staffing. As things stand now, projects—those recently completed, now in progress and just getting under way—fall into four major areas: Track, equipment, systems and operations. In addition, there are test projects in a dozen or so areas; and there are what AAR terms "responses" to issues—issues such as safety, the environment and the effectiveness of transportation and, predictably, there is overlap and cross-pollenization between "responses" and initiated R&D.




Just one evidence of the complexity of the track/train dynamics program is this cause/effect map of the dominant track/train dynamics interrelationships. As AAR puts it, the thrust of the program "is to go at least one step further and determine the cause/effect links which act on the cause elements. . . .This effort is leading to identification of factors which can be controlled and will in turn control the dynamic behavior."

Probably the most-publicized of the AAR research efforts is the track/train dynamics program, a three-phase, 10-year program scheduled to be wrapped up in 1982. Phase 1, begun two years ago, involves an analysis stage and an interim-action stage regarding present dynamic aspects of track, equipment and operations in order to reduce excessive train action. Phase 2, scheduled for completion in 1977, involves development of improved track and equipment specs and improved operating practices, all aimed at increasing dynamic stability. Phase 3, a five-year part of the

# One goal: Improved freight-car-demand forecasting

program, involves actual application of more-advanced scientific principles in order to make major improvements in train and track systems.

● **A boost for operations.** Just as intriguing—and probably of equal long-run value—are studies in train- and car-operating areas. Terminal operational research is one (RA, July 29, p.28; Nov. 12, 1973, p.40). Freight-car-demand forecasting is another.

As AAR research people point out, the empty-car distribution process divides into three areas—demand, supply, and the matching of supply to demand "according to a defined objective, such as fulfilling the greatest amount of demand with the smallest amount of empty-car-miles or -days. An efficient distribution process requires each of these parts to have both a good data base and a good methodology for prediction or optimization."

But what is the situation as it actually exists? First, most major roads now have—with computer help—a good handle on car location and car movement: "The improvement in accuracy, timeliness and relevancy of such car movement data will permit projections of the number of empty cars available by car type and location. This represents a significant improvement in the railroad's capability for knowing existing and future empty-car availability. In addition, research efforts on individual railroads and within FRA are analyzing various computerized supply-demand allocation techniques. But relatively little progress has been made in the demand area. Shippers generally telephone specific car orders to local railroad agents. If sufficient cars are not locally available, the agent reports his net deficit situation to the division or central car-distributor, who issues orders for the forwarding of cars to the agent."

This, of course, leads to problems. Railroads can't stockpile cars to meet any level of demand at any location. So, some amount of car-demand is filled late; some may be filled not at all or at least so late that the shipper diverts traffic to another railroad or to another mode of transportation. But the impact of the problem "can be reduced by moving surplus cars to deficit areas in advance of the time when they are needed. To accomplish this, though, an improved demand-information and -forecasting system is a must."

As set up in a cooperative AAR/FRA program, this will be a two-phase effort, to end in October 1975. Phase 1 involved initial development of functional specs for a demand-information and forecasting system; Phase 2 will require a demonstration of a system and an evaluation of cost/benefit factors.

● **Collect and analyze.** Substantial progress, AAR believes, has been made through a task-force approach "and especially with efforts from two railroads. Data have been collected from each of the two roads, including all car movements, waybills, demurrage records, car orders and local-agent weekly forecasts within an operating division over a two-month period. Analysis will help in understanding shipper car-order practices and railroad response."

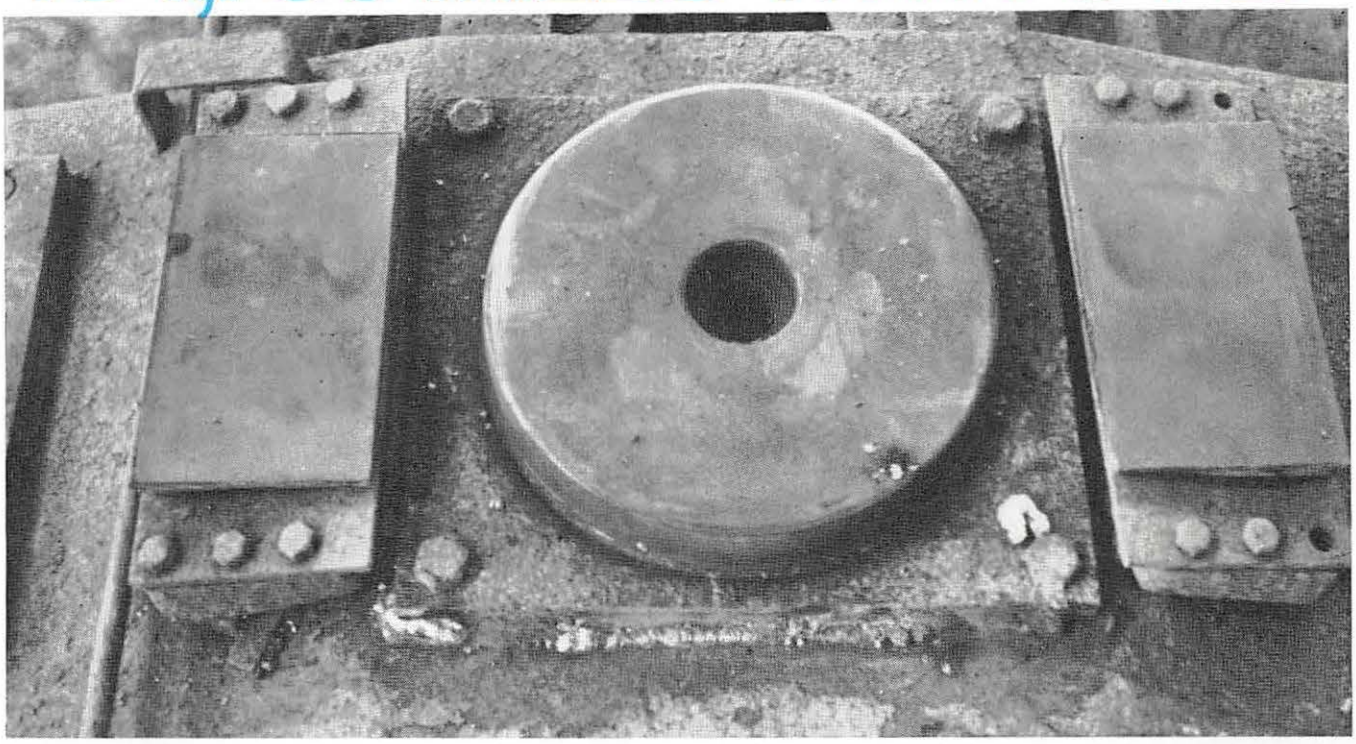
Studies were to embrace such items as the value of additional car-order lead-time, the effect of not providing car destinations when placing a car-order, the attributes of a usable forecast: "Statistics will be evaluated from a case-study approach, rather than from any contention that the results would be identical for every railroad. However, the results should be representative in kind if not in degree for most railroads and will be evaluated for broader inferences to the industry. . .Additional specific activities are an evaluation of forecasting techniques against subjective local-agent forecasts, and commodity/car relationships using the 1969 and 1972 DOT 1% waybill sample."

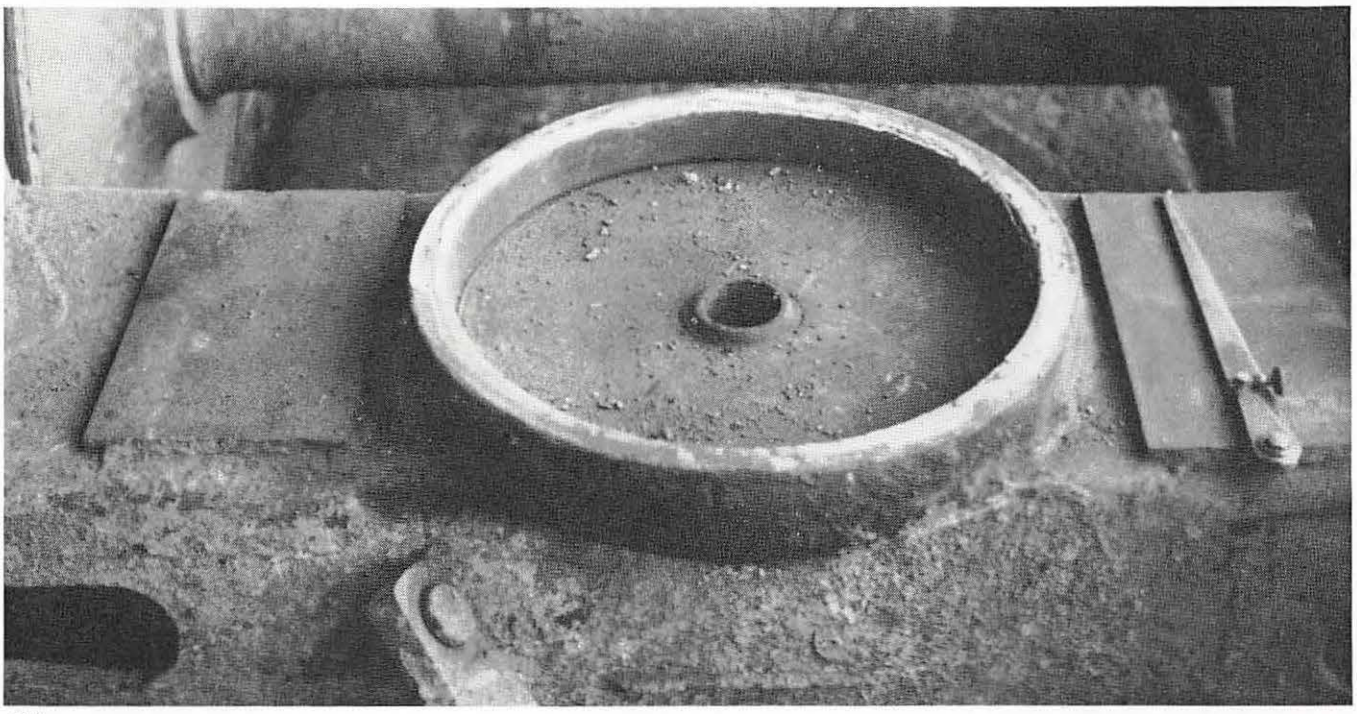
As matters stand, AAR researchers believe that "several areas have been identified which appear to have considerable potential for improvement. A proper demand-information system can provide data to monitor specific shipper problems in obtaining cars by showing orders unfilled and cars furnished late. It can be used to encourage shippers to provide more advance notice and to provide a data base for forecasting demand. This would permit empty cars to move in advance to a place where they are most needed and reduce the cars furnished late. It's expected that the completion of Phase 1 will provide enough information to indicate the directions an advanced demand-information system should take. The implementation of these recommendations in Phase 2 will provide a mechanism to ascertain the validity of the approach and to measure the potential, on a cost/benefit basis, which might accrue."

● **Wide-ranging research.** Back on the technical side, what else is being or has been studied? Track and its stability. Crossties. Freight-car trucks. Truck hunting. Rock and roll of freight cars (somewhat euphemistically called "lateral instability"). Wheels. Couplers and advanced coupling systems. Tank cars, from the safety standpoint. Materials and their durability. Unit trains. Locomotive air filtration. Electrification. Automatic car identification. Track/train dynamics. Movement of spent-nuclear-fuel elements. Communications systems. Signal systems. A lot of other things. And add in the activities which qualify more directly as "test" than as "research."

Why all this effort? It boils down to a matter of transportation effectiveness. And AAR's Bill Harris and his people look at it this way: "The effectiveness of rail transportation is dependent upon its ability to provide service desired by shippers. Criteria applicable to service include speed of delivery, cost of movement, time reliability of movement and compatibility with the product being moved in matters of loading, unloading and loss-and-damage. The technical advantage of the railroad industry derived from its efficiency of utilization of energy can only be utilized effectively if reliable and safe service is provided. A substantial part of the research program which has safety implications also contributes to improved service and effectiveness of transportation. If component failures and derailments are reduced, reliability of service and absence of loss-and-damage—or reduction of loss-and-damage—will occur. If dynamic interaction and improved operating practices that provide more stable train service are adopted, more effective transportation will result. If safer cabs are introduced, with fewer injuries, personnel will be able to perform their functions in a better fashion. If resources can be utilized more efficiently and productivity of terminals improved, the time-reliability of delivery will be increased. In reviewing the issue of transportation effectiveness, therefore, attention must be given to much of the work being done on track and equipment and on operations—because all contribute toward improved rail transportation." ■

# 484,790 MILES WITH C-PEP





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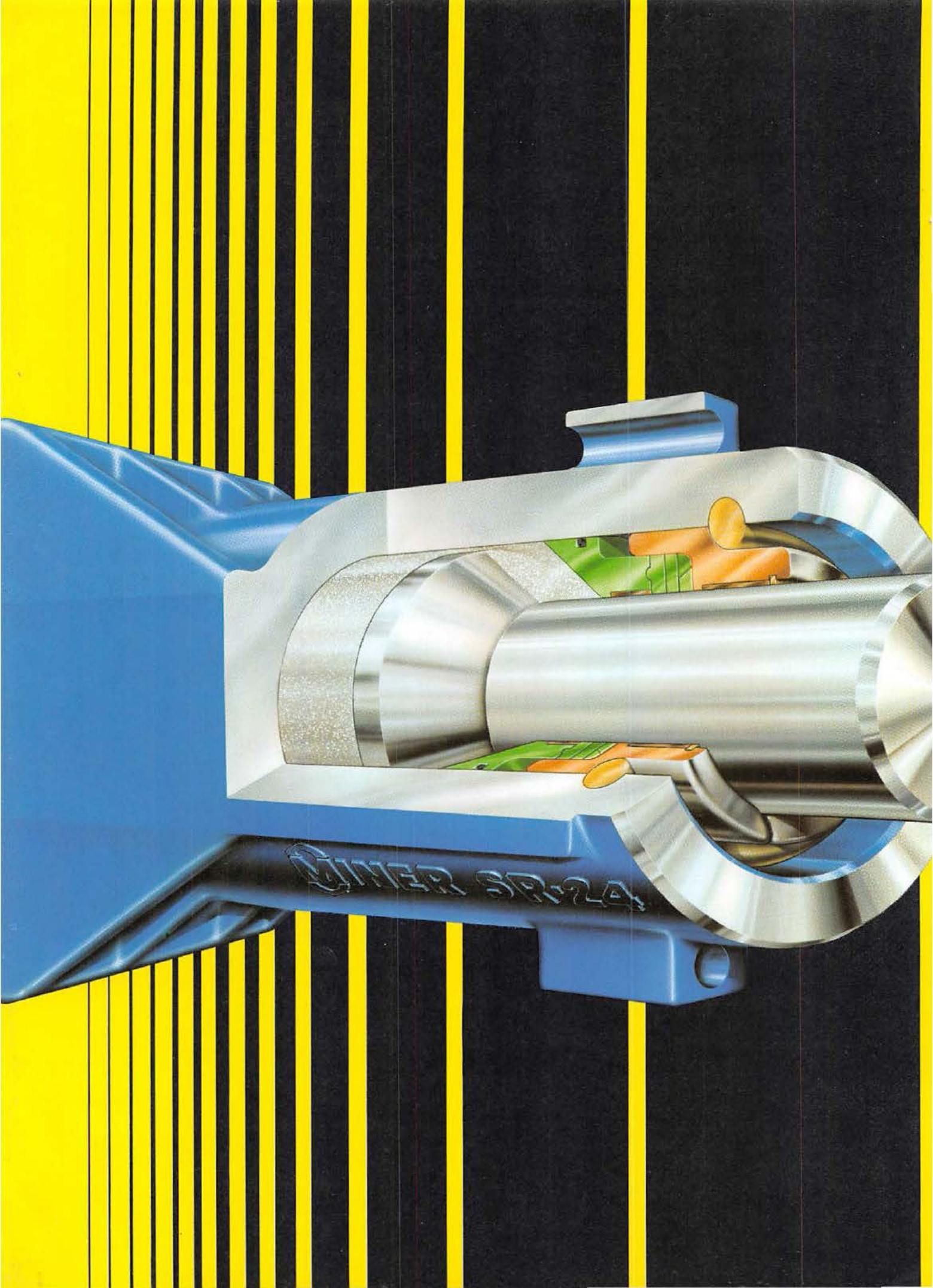
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A RAILWAY AGE SPECIAL REPORT:

# Ideas for better shipping

## Wide range of new products facilitates materials handling, equipment movement, maintenance and storage

The urgency of meeting the market needs of the world's rising population means that railroads and shippers must constantly be alert to new and improved ways of moving goods to markets faster, easier and at less cost. Hundreds of firms, large and small, are daily calling upon their marketing, design, engineering and manufacturing groups to come up with new and improved products to meet the shippers' needs. Products shown here are a reflection of this competitive endeavor to serve the nation's shipping firms.

### Gaining intermodal dexterity

Containerized cargo intended for intermodal shipment receives special attention by the Hyster Company. An optional container handling attachment transforms the H700-800A Challenger series lift trucks into versatile, complete container-handling systems. The attachment can be hydraulically adjusted to fit the corner fitting attachments of all ISO containers ranging from 20 to 40 feet in length. Hyster's standard disconnect system permits easy installation and removal of forks.

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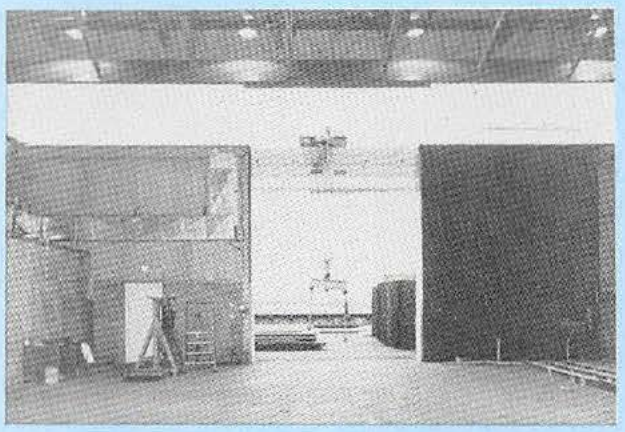

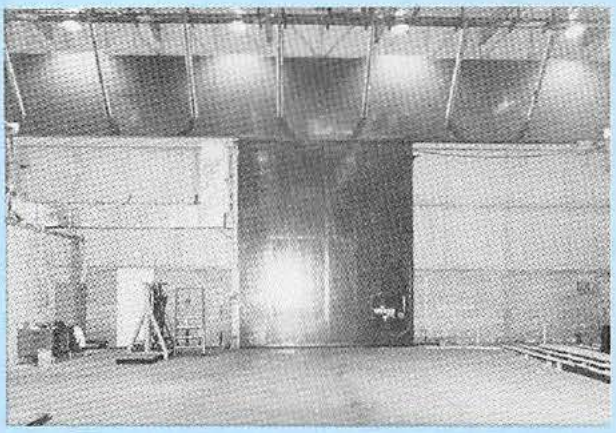

## It's open (and close) sesame

In-again, out-again operations of large overhead cranes between plant interior and storage or receiving areas cause energy loss of heated or cooled air and employee discomfort during inclement weather. Richards-Wilcox Craneway Doors help reduce such losses and discomforts. Custom-built for each application, the doors are available for either electric or manual operation. Safety measures can be built into the doors; such as interlocks which require the upper part of the two-part doors to be completely open before the lower part can be opened. Photos show doors open and closed.

Circle 71 on reader service card

## Bridging the dock

Bridging the space between dock and railcar offers a never ending challenge to make a better ramp or dockplate.

Above is the Bridgomatic rail dockplate made by Woodford Manufacturing Company with D-Rings which automatically lock the plate in place.

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Below is the improved Kelley Company, Inc. rail ramp using larger rollers for easier positioning.

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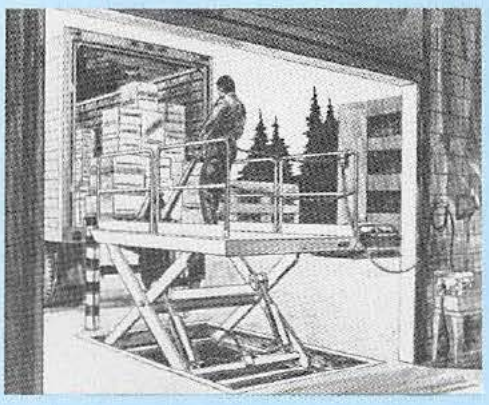

Stable, secure and adjustable loading docks are a necessity in certain warehouse and terminal operations. American Manufacturing Company offers this dual cylinder hydraulic lifting dock with shallow pit or ground installation optional. It is available with telescoping-type metal safety skirts to completely cover exposed under-deck area.

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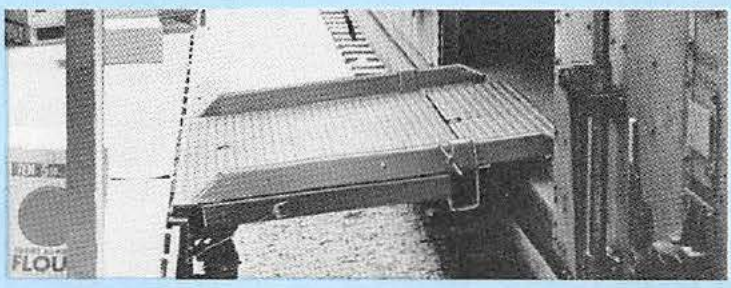



(Continued on page 40)

Phil

# THE 20 MINUTE TRANSPLANT

*For centuries, man has been trying to increase the span of life. In himself and in the things he loves most.*

*At Fruehauf, we love trailers. So it's only natural that we would try to make them better, to last longer. And a damaged or worn kingpin can shorten the life of the toughest piggybacks around. Or send them to the shops for long, expensive repairs.*

*That's why Fruehauf developed the removable kingpin. It works like this. A high-strength kingpin retainer block is permanently welded into the upper coupler structure. Then a removable kingpin, made of the same high-strength alloy, is bolted into place with aircraft-type high-strength bolts. The threads are even coated with 2 special epoxies which combine to seal the bolts in place.*

*Now, what you've got is a Fruehauf Z Van, one of the toughest trailers ever made. Plus our new removable kingpin.*

*And this time, when the kingpin is worn or damaged, one man can replace it with a brand-new kingpin and brand-new bolts in less than 20 minutes. And we think that's a lot better than replacing the whole coupler assembly.*

**That's why you're way ahead with Fruehauf behind you.** TOTAL TRANSPORTATION

# FRUEHAUF

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# A progress report from Electro-Motive.

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A modular control panel and new AC generator reduce maintenance time and simplify parts problems. The crankcase and underframe were strengthened to provide a more rock-ribbed foundation. And the cylinder liners, piston rings, inertial air filter system, and many more components were improved for this new locomotive series.

**Two years of operating experience proves the "Dash-2" Series lives up to your expectations.**

The "Dash-2" Series has a better operating availability rate than the rest of the fleet. We know, because every day our servicemen monitor the performance of the 40 Series locomotive fleet. We record the maintenance needed, downtime accumulated, and operating reliability of each locomotive. And we've found that regardless of conditions, the "Dash-2" Series is meeting its goals for dependability and operating maintenance.

Monitoring the locomotive fleet's performance tells us where to direct our engineering and research efforts to improve reliability. These daily records help us maintain the high level of dependability you've grown to expect from EMD. They're part of our commitment to motive power reliability.

GM
MARK OF EXCELLENCE

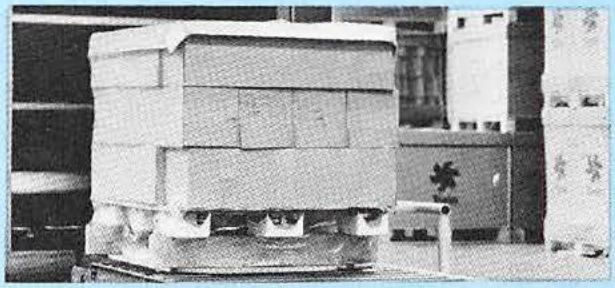
Electro-Motive Division
La Grange, Illinois 60525

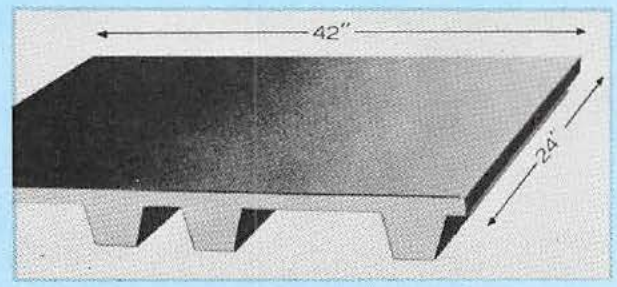
# Ideas for better shipping (Continued from page 35)

The trend is toward plastic shrink-wrapped palletized shipments because they offer protection from damage (particularly by weather), economy in warehouse handling and promote cleanliness en route as well as in the warehouse. A machine for pallet shrink wrapping, designed to hang from a customer's ceiling beam with vertical travel on a supporting column, is made by Shrink-o-matic Inc. The all-electric unit has neither blowers nor vents, only one moving part and has a speed of 20 pallets per hour, including random size loads.

Circle 75 on reader service card

## Pallets, palletizing designed anew





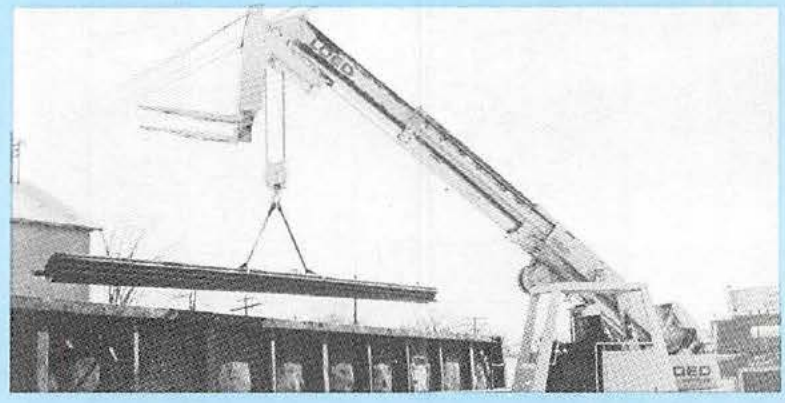

Weight saving and space saving are claims made by Spur products for its new polystyrene shrink-wrap pallet (left) which weighs 8 lb. The molded polystyrene foam pallet is encapsulated in a thick kraft paper skin. Spur also announces new design features for its 42-in. x 24-in. shortie pallet (right) and new customer storage and delivery services.

Circle 76 on reader service card

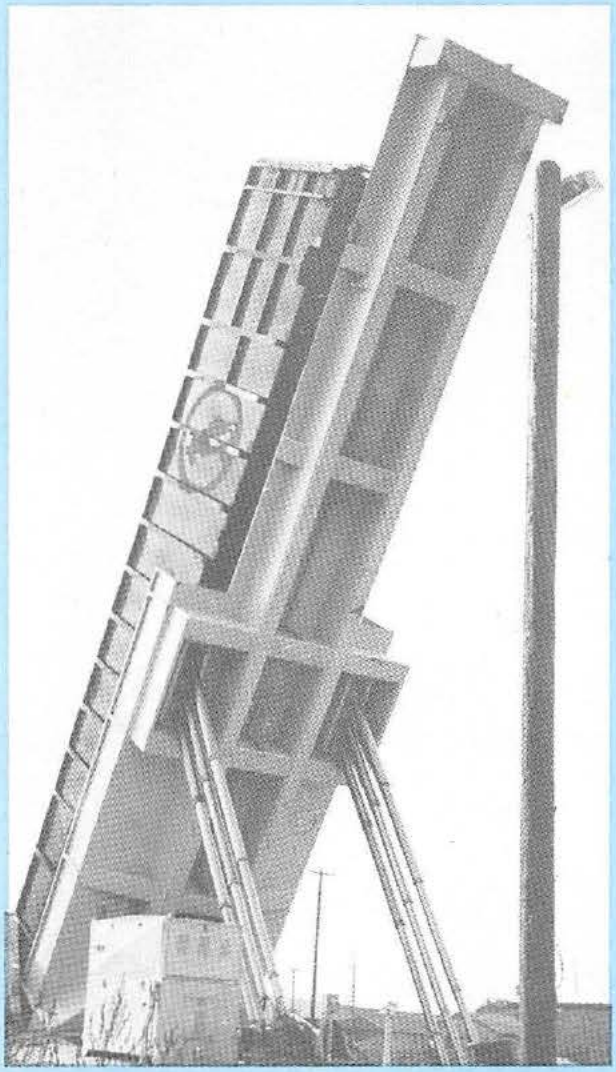
## Hook and lift combined

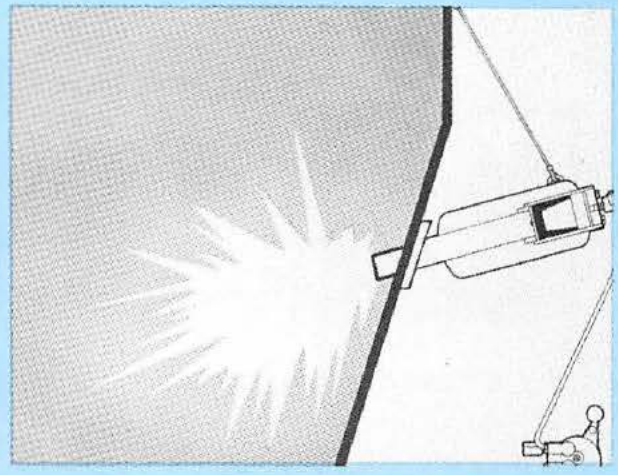
Handling a pallet or a bundle of iron pipe with one machine and one operator offers obvious advantages. A multi-purpose material handling machine with ability to move hook or fork loads, and rated at 18,000 lb, is the Loed Corporation's model 552 handler. It has lift capabilities to 23 feet with a standard reach across stockpiles into freight cars and trucks and through doorways. Greater height and reach are available with a manual fourth boom section or with a longer boom.

Circle 77 on reader service card



## Hustling bulk movement





Moving materials that tend to consolidate in hoppers, bins or silos that cannot be vibrated is the function of the Big Blaster Aerator made by Martin Engineering Company. The Aerator discharges an explosive release of compressed air into the container, causing stubborn, fine grain materials to break up and flow freely. A volume of compressed air is retained in the unit's reservoir, and released by a quick opening valve. Aerators can be mounted in remote locations and may be installed with automatic timing systems to discharge the units at timed intervals, individually or simultaneously.

Circle 78 on reader service card

Dumping coal, aggregates or other materials from hopper cars into a storage or conveyance facility gets an assist from the rail car dumper made by Peerless Division of Royal Industries. Cycle time is approximately four minutes—three up, one down. With a lift capacity of 300,000 lb, the one-place construction tilting platform has a 60-degree tilt angle.

Circle 79 on reader service card

## Piggybacking in the yard

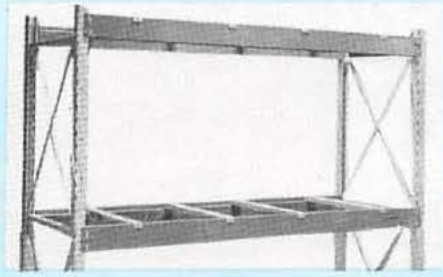
No hydraulics or electrical connections are required for a new 100,000 lb ramp design from Production Engineering, Inc. The 40-ft piggyback ramp is purely mechanical with a pull up device similar to hitches on a TTX car. The pull up device is raised to fifth wheel height by attaching a chain from the device to any tractor, which is then driven forward about five feet. The driver then backs up his truck to engage his fifth wheel to the king pin on the ramp.

Circle 80 on reader service card

(Continued on next page)

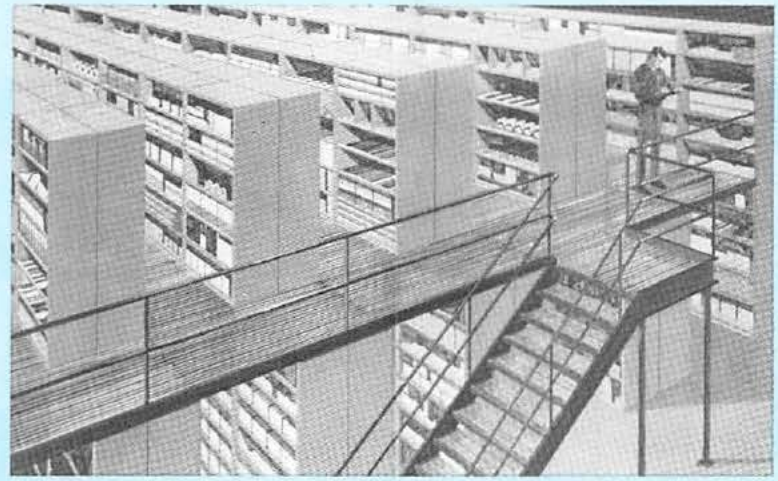
# Ideas for better shipping (Continued from page 41)

## Keeping things in place



People who like products "overdesigned for safety" may want to look into the new premium pallet rack announced by Sturdi-Bilt, Materials Handling Division of UNARCO Industries, Inc. Impact protection from errant fork lift trucks is provided by structural redesign of the bottom portion of the upright posts. Debris shields are also new and prevent spillage from storage bays to accumulate inside the frame column.

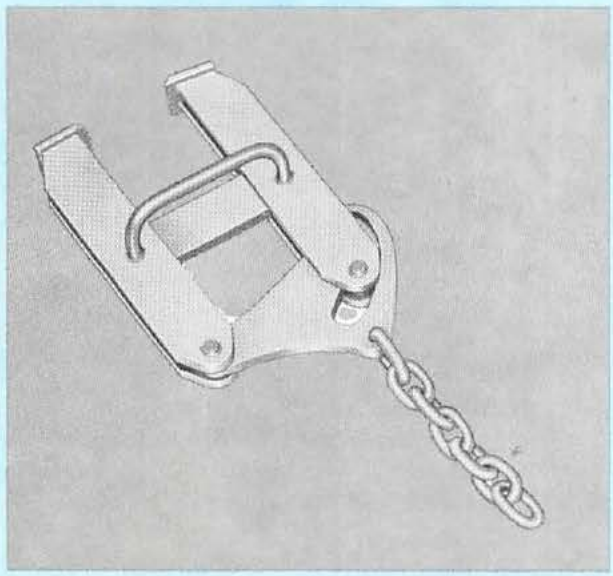
Circle 81 on reader service card



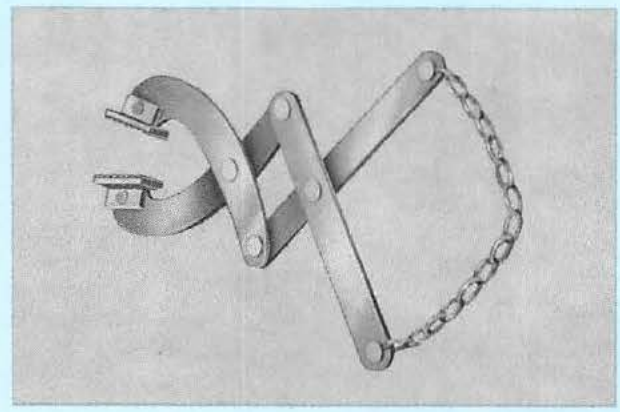
Threaded fasteners are not used in the assembly and adjustment of the new "8000" steel shelving made by Lyon Metal Products, Inc. Only three basic parts are required—upright, fully adjustable one-piece shelf clip and shelves. A single prong shelf clip slips into place on the upright. Pressing the shelf edge between the clip and upright member forms a rigid connection.

Circle 82 on reader service card

## Moving 'hard to get at' pallets



How to move a loaded pallet that cannot be reached by a fork lift truck has been studied carefully by two companies. Elimination of back sprains and lost time accidents should be among benefits of these pulling devices.



Pallet Puller Division of National Packaging (left) has a Palligator puller which may be inserted into the center of a pallet and attached by chain to a fork lift to be pulled to another position or area for regular lift truck handling.

Circle 83 on reader service card

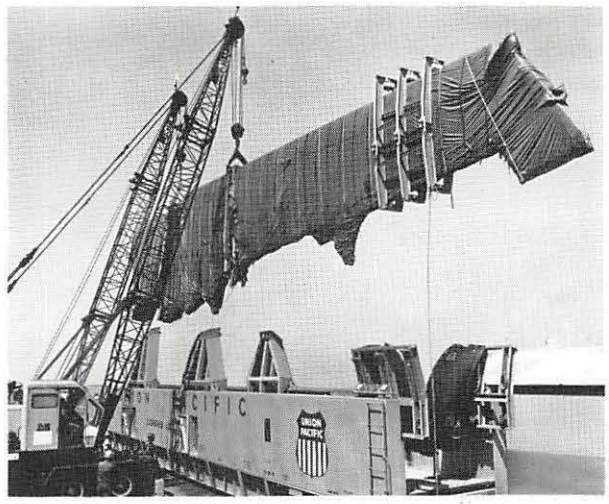
Rampmaster Incorporated announces its pallet grabber (right) used to pull, rotate or slide loaded pallets or heavy crates into position for normal equipment handling.

Circle 84 on reader service card



Continued on page 44

# We can handle it.



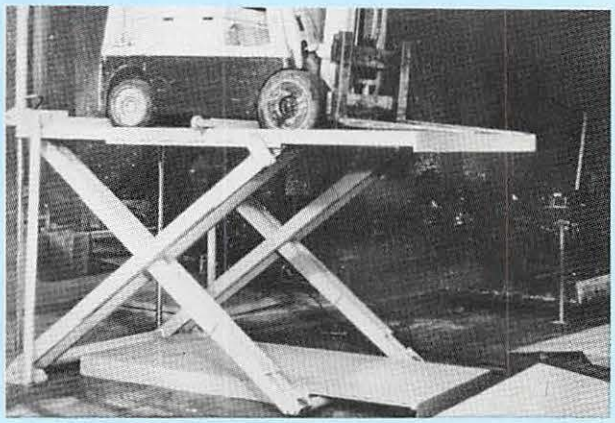
the Union Pacific railroad people

Contact your local Union Pacific Traffic Agent today.

UNION PACIFIC

# Ideas for better shipping (Continued from page 42)

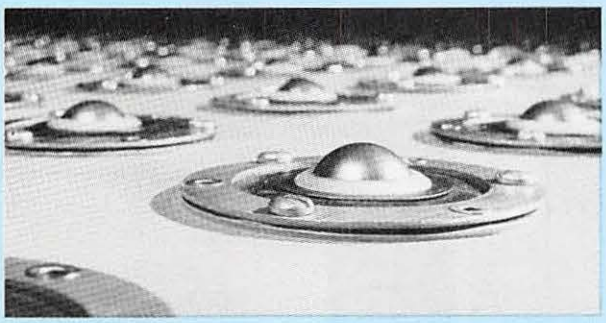
## For working the underside

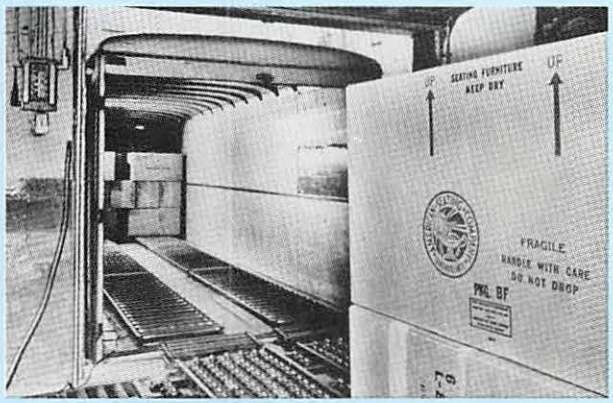


Servicing of fork lift trucks without requiring pits, chains, wires or cables is offered by Autoquip Corporation with three Spartan hydraulic service lift models having capacities up to 20,000 lb. They are designed to enable users to comply with OSHA regulations for lifting equipment; safety of maintenance personnel is provided by hydraulic lock valves and mechanical safety legs.

Circle 88 on reader service card

## A way to get on the ball

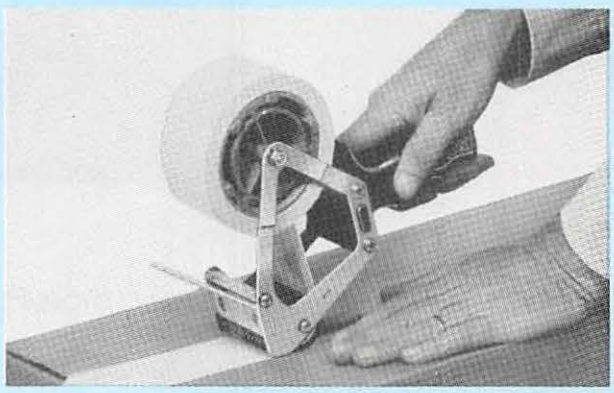





It's hardly news that time is money when it comes to the transferring and handling of cargo in huge shipping crates and pallets. The ease with which ball transfers convey palletized cargo freely in all directions is described in a new brochure from General Bearing Company. Ball transfers, as multiple rolling elements, offer an unlimited number of axis' of directional movement in any given place at a moment's notice. Load capacities range from 40 to 4,480 lb per unit. It looks like a squadron of f flying saucers in close up of ball transfers (left). Other photo (right) shows cargo rollers, too.

Circle 89 on reader service card

## Sealed with a hand-hold



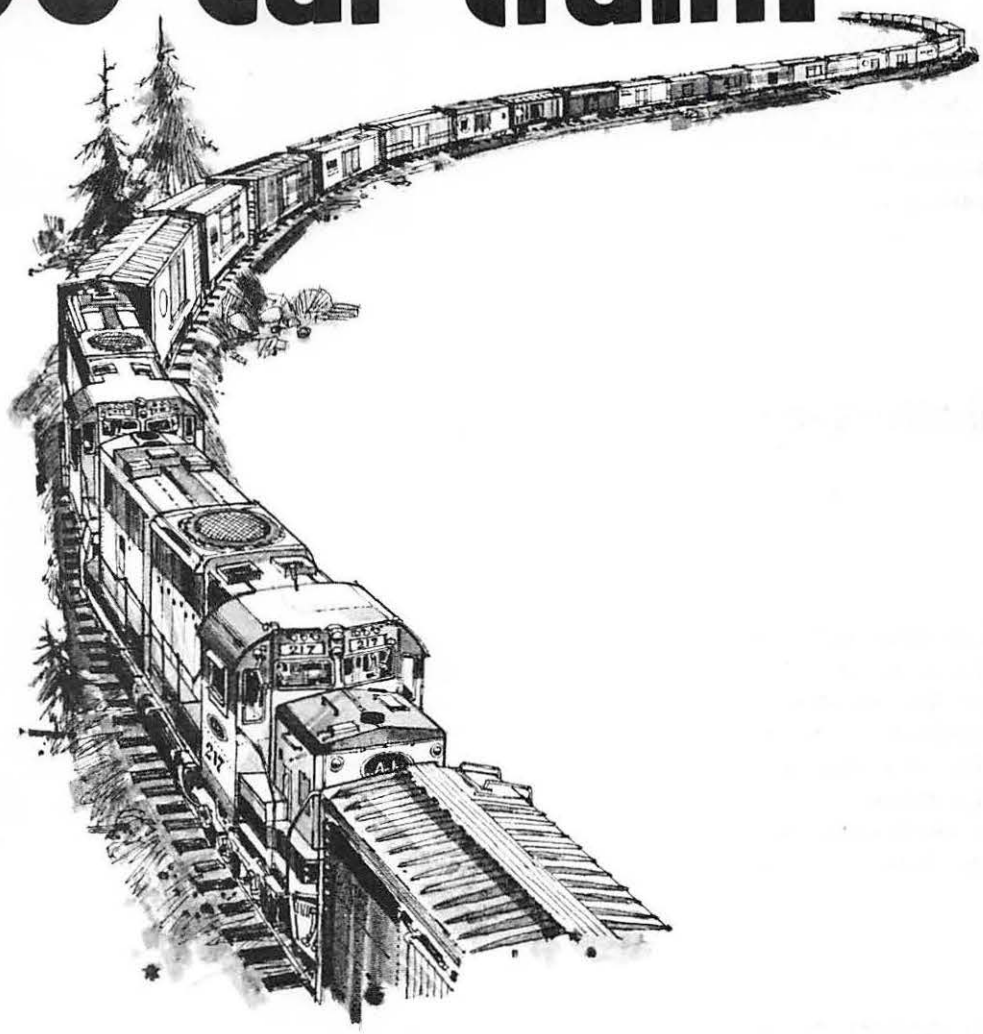
Hand-held tape dispenser applies and cuts PVC pressure-sensitive tape to packages for carton sealing, recoopering and a growing number of strapping and sealing applications. Malow Corporation says the 2-in. x 55-yd tape rolls can be imprinted for customer's product or service identification.

Circle 90 on reader service card



(Continued on page 46)

# How to shorten a 100 car train:



# LOCOTROL®

Efficient use of divided locomotive power. Safe, precise motoring and airbrake control of rear locomotive consist from lead unit. More even distribution of drawbar stress in long, heavy-tonnage trains. Effective, profitable utilization of trackage and equipment. *For a study of your operation to determine the facts and figures of Locotrol economics, contact Fred Routledge at Harris Controls, P.O. Box 430, Melbourne, Florida 32901; or call 305/727-5764.*

HARRIS COMMUNICATIONS AND INFORMATION HANDLING

Circle 2 on Reader Service Card

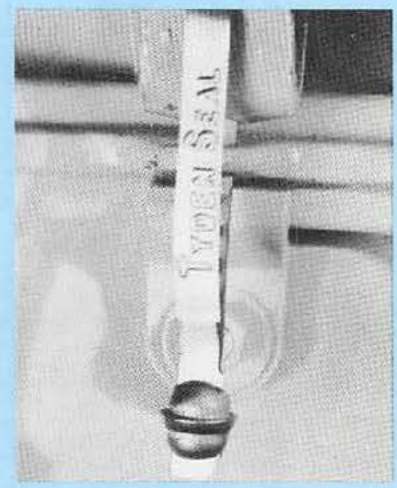
# Ideas for better shipping (Continued from page 44)

## Quiet does it

Shippers handling certain lines of processed or raw foodstuffs as aromatics for toiletries and cosmetics are particularly aware of the advantages of electric lift trucks. Their lack of pollutants cause neither taste nor odor contamination. Crown Controls Corporation series PTE 24-volt electric pallet truck has a 6,000-lb capacity with speeds up to 6.5 mph.

Circle 85 on reader service card

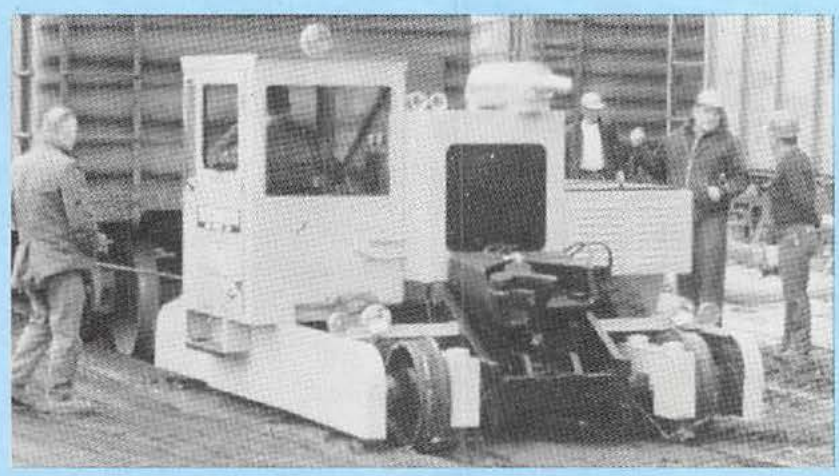
## Seal offers thief-relief




Stealth in cargo theft often means stealing in such a way that a hook-lock seal has been opened and re-closed without leaving evidence of tampering. The best deterrent to theft is a tamper-proof seal to give positive identification that a theft has been made or attempted. The Tyden Seal has never been opened without leaving clear evidence of tampering, according to Tyden Seal Company. Tyden Seal employs two piano rings in its spherical construction, making it impossible to disengage the seal without destroying it.

Circle 86 on reader service card

## New push-pull mobility in railcar handling



Equipped with four road wheels and four rail wheels, the new Switchmaster from White Machinery Corporation offers mobility and maneuverability in getting to railcars scheduled for re-spotting. It has the pulling power of a 30-ton locomotive with drawbar pulling capacity of 20,000 lb when coupled at one end and 31,000 lb when coupled at both ends. A horizontally-pivoted axle assembly enables rail wheels to follow spongy beds.

Circle 87 on reader service card

# Mo-Pac's Matchmaker: Have we got a nice distribution program for you.

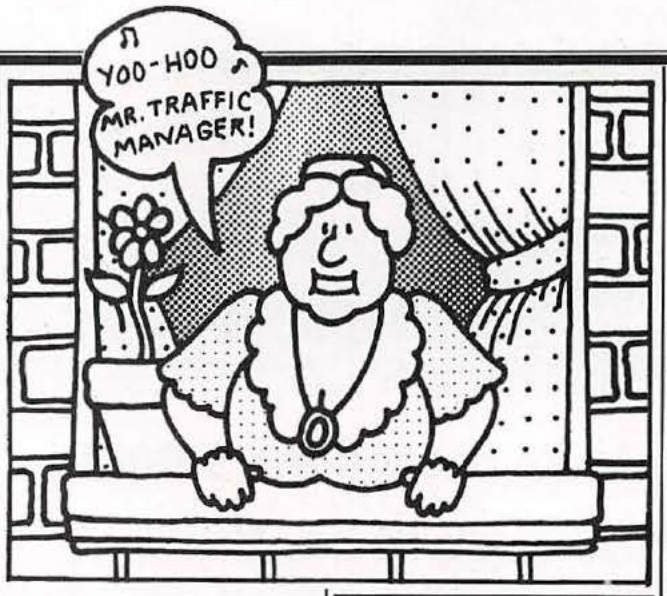
### YOU LOOK LIKE A NICE PERSON

Sure, you're no John Wayne, but you make a decent appearance, and besides, you have a good job.

So what's with all this crazy carrying on? No wonder you look so pale.

Listen to me, it's high time you settled down and found a nice respectable carrier for your very own.

For example, take Mo-Pac, a family of carriers any traffic manager can be proud of. First, there's Mo-Pac's Missouri Pacific Railroad and Texas & Pacific Railway. Two very important members of Mo-Pac's successful Total Distribution Package. 12,000 miles of on line territory. 12 states of the great Midwest, South and Southwest. Over 400 trains daily. 17 vital shipper services. No wonder they're so popular.




### ANOTHER CHARMER

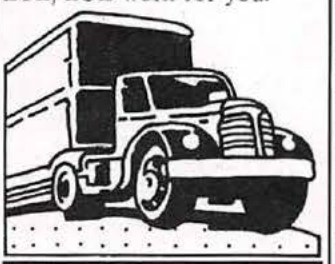
But have you met the Chicago & Eastern Illinois Railroad? Another very important member of the Mo-Pac family. Since it joined Mo-Pac in 1967 the C&EI has come a very long way, what with modernizing and revitalizing from the tracks to beefed up schedules, new rolling stock, improved computerized terminals. It's as good a catch as you'll find.

The C&EI is a very sensible choice — especially for your shipments moving through the Chicago gateway to points in the Northeast, West, South and Southwest. Its schedules are fully integrated into Mo-Pac's. So you get everything Mo-Pac has to offer, like

special piggyback plans and quick, computerized tracing—with the advantage of bypassing St. Louis if you need to (and without going out of your way). Nice, eh?

### THERE'S MORE TO MO-PAC THAN JUST RAILROADS

There's two of the country's best over - the - road carriers. Missouri Pacific Truck Lines and the Texas & Pacific Transport. Together they operate more than 3,000 units of highway equipment over 18,000 miles of road. They work right with Mo-Pac's rails to make programs ranging from containerization (including all six standard plans) to LTL/LCL work for you.



### VERY QUICK AND EFFICIENT

There's still one more member of the Mo-Pac family you should meet: Missouri Pacific Air Freight Forwarding. They pick up your shipment at your door, forward it directly to the airline with the best possible schedule, and make sure it's delivered. They even call you to tell you so. That's what you call single carrier responsibility, speed and personal service.

One waybill does it all because one carrier does it all. Mo-Pac. That's what you call single carrier responsibility, speed and service.

Did I tell you you'd find what you're looking for in Mo-Pac. Not only do you get all of this, but you get highly trained professional salesmen who know their business. They can help you wrap it all up in one comprehensive distribution package to suit your most exacting needs. And that includes saving you time, money and aggravation whenever and wherever possible.

Talk to your nearest Mo-Pac representative. He'll fix you up with the distribution of your dreams.

**mo-pac**

**Missouri Pacific Railroad**
**Texas & Pacific Railway**
**Chicago & Eastern Illinois R.R.**
**Missouri Pacific Truck Lines**
**Texas & Pacific Motor Transport**

# Welded rail: Santa Fe passes the 5,000th milestone

Somewhere in a 91-mile track improvement project between Marceline and Eton, Mo., there's rail with "5,000th Mile" stenciled on it—marking just that, the 5,000th mile of welded rail installed by Santa Fe since it began using welded rail in the 1940s. That's a lot of smooth riding—and a lot of reduced wear, too, since Santa Fe estimates its welding programs thus far have resulted in the elimination of more than 1.3 million rail joints. If the program continues at its present pace with 350 to 400 miles of welded rail installed each year, Chairman and Chief Executive Officer John S. Reed estimates that "we will have completed welding all trackage on principal routes within six or seven years."

# LETTERS

## Short trains

Washington, D.C.

To the Editor:

Many thanks for the splendid article in the July 29 issue of Railway Age covering my study on the economics of short trains. Gus Welty did an excellent job of summarizing and highlighting the important aspects of the study. I thought you would be interested to know that we have been deluged with requests—over 450 to date.

Comments we have received to date have been favorable. So far, the requests for the reports seem to be running one-fourth from operating personnel, one-fourth from marketing people, and one-fourth from shippers. Also, you must have a large collegiate readership since we have received a large number of requests from students and professors. I was amazed by the large number of requests from top-level railroad officials. We have also received several letters from local chairmen of the UTU, but no requests from Cleveland.

The response which the article in Railway Age generated has been rewarding to me, justifying the amount of time and effort. I am encouraged that future efforts of this nature will be welcomed by your audience. The ultimate test of the value of such research, however, will be determined by the industry's future courses of action.

*Robert H. Leilich*
*Senior Consultant*
*Peat, Marwick, Mitchell & Co.*

(For the information of persons interested in obtaining a copy of the report, distribution has been turned over to the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161. The accession number is PB235411; copies are available at $3.25 paperback and $1.45 microfiche. —Ed.)

## The idle-car problem

Portland, Ore.

To the Editor:

You are to be commended for your efforts to accurately report on the box car problem. Your editorial of Aug. 26 describes the situation at that time and gives credit to the railroads for improving availability of cars over the last 12 months.

Another angle to the box car problem is supply and demand and/or building of fleets for peak loading periods.

In this vein, it may be only fair to mention the railroad problem and cost, when business is average and/or below previous levels. On Sept. 13, 1974, the Oregon Journal reported that the Union Pacific had 2,500 box cars sitting idle. Jack Bowen, UP's general superintendent-transportation, stated, "This is a situation the public seldom hears about, but which the railroads must face when planning equipment acquisitions." I am sure you will appreciate some of Jack's problems as a railroad manager, especially when some $75 million in equipment is not generating *one* revenue dollar. I know the UP is not alone, as Norm Lorentzsen, president of the Burlington Northern, recently commented on the surplus of box and covered hopper cars available for loading. The Southern Pacific, likewise, has large inventories of cars on line, all of which are a cost to the railroad.

*John H. King*
*General Traffic Manager*
*Georgia-Pacific Corp.*

(For editorial comment, see p. 62. —Ed.)

Washington, D.C.

To the Editor:

I want to congratulate you on the quality of the article on the United States Railway Association (RA, Sept. 9, p. 21). I think it goes a long way to straighten out some of the misconceptions about USRA.

*Arthur D. Lewis*
*Chairman*
*United States Railway Association*

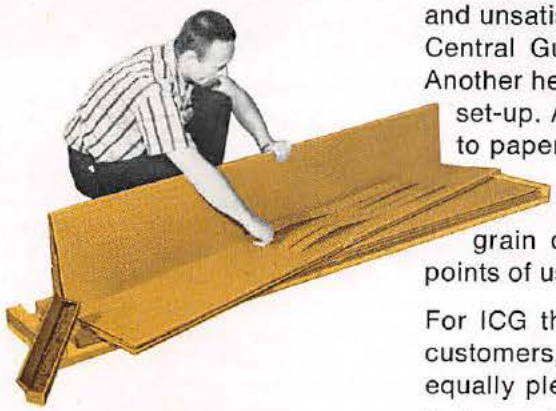
# The ICG knew there had to be a better and more economical way to provide their shippers with grain door protection.

# International-Stanley helped them find it!

C. W. Damiano, ICG general superintendent car control (center), discusses grain door kit deliveries with Richard Arthur, I-S district manager (left), and Jack M. Reckley, ICG superintendent car control.

## UNIQUE I-S GRAIN DOOR SUPPLY AND SERVICE SYSTEM

Between pilferage, delays in unloading heavy doors at coopering points, and unsatisfactory sanitation, wood doors were a headache to the Illinois Central Gulf Railroad Company's car control and freight claim people. Another headache was the cumbersome inventory control and distribution set-up. After discussion with ICG executives, it was decided to convert to paper doors; and International-Stanley Corporation representatives, together with ICG car control people devised a unique plan whereby I-S assumed responsibility not only for supplying the grain door kits, but for delivering required quantities direct to ICG points of use.



I-S delivers grain door kits—containing everything needed to cooper one car in a convenient single package—direct to points of use.

For ICG this has meant increased efficiency, lower costs, and satisfied customers, since elevator operators, processors, and other shippers are equally pleased with the new grain door operation.

*Write or phone for further information.* **Toll free: 800/228-9257**

**INTERNATIONAL-STANLEY CORPORATION**
8401 W. DODGE ROAD, OMAHA, NEBRASKA 68114 · 402/391-8770
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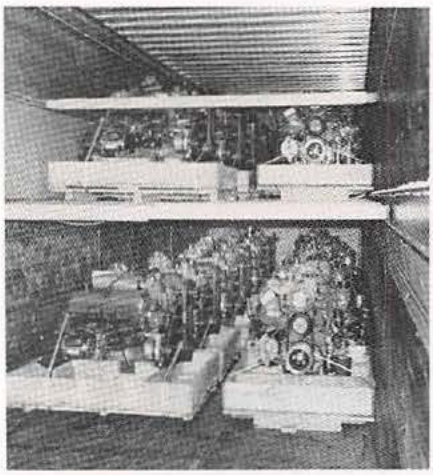
# Products Report



## Double-decking system enlarges cargo space, cuts damage claims

A captive double-decking system has been designed for railcars, trailers and containers used to carry crushable or non-stackable items. Intended to reduce lost cargo space and reduce damage claims, the system is made by Realco Services and Interway Products. Called deck II, the system consists of two-foot platforms made of high-strength structural aluminum with all-weather plywood decking. Each platform, resting on steel tracks running the length of the cargo area on both walls, can handle a ton of cargo and is stored vertically.

Circle 60 on reader service card

## Restrainer protects full and part loads under severe impact

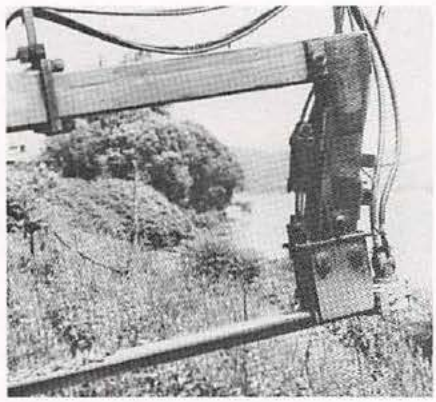
A shifting trailer or container load that can cause damage to both load and end doors may be secured with the Cincher captive load restrainer made by Equipco Division of Unarco Industries, Inc. Utilizing a moveable, flexible wall concept, Cincher features a vinyl-coated nylon shield and an internal belt system to protect both full-capacity and partial loads under severe impact conditions. When not in use, the shield folds against the sidewall with minimum cube loss.

Circle 61 on reader service card

## Safety grating for car runways has drain-through surface

Improved employee safety on the runways of covered hopper and general-purpose freight cars is offered in the Grip Strut safety grating from the Transportation Products Division of the U.S. Gypsum Company. The grating (long used in the oil, food processing, aircraft and automotive industries) has reticulated, formed metal cross struts arranged in open diamond pattern to permit drainage of grease, fluid, mud and ice for optimum footing.

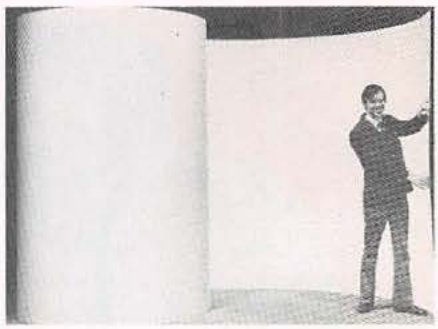
Circle 62 on reader service card



## New vibrating undercutter makes tie removal easy

A machine using a vibrating undercutting principle to facilitate railroad tie removal has been developed by Railway Maintenance Corp. The VTU machine (vibrating tie undercutter), mounted on a self-propelled car, needs only one operator. A hydraulically-powered vibrating steel shaft is inserted under the tie, creating a 2-in. void; once the tie has been undercut, it is easily removed in one piece without jacking or moving the track out of alignment. The undercutting assembly is mounted on a turntable to permit insertion from either side of the track. Components of the VTU machine include a 101-hp diesel engine, an operator's cab, an undercutter assembly mounted on a turntable, and fail-safe air brakes.

Circle 63 on reader service card



## Seamless liner for cars comes in "king size"

Seamless construction for freight car liners is featured in the Glasbord fiber glass reinforced paneling available up to 9 ft in width and 40 ft in length. Kemlite Corp. stresses that the lack of seams minimizes heating or refrigeration loss and permits faster cleaning along smooth, unbroken wall surfaces.

Circle 64 on reader service card

## Trailer/container handler now has a warning device

The mobile gantry is gaining wide usage in the business of loading and unloading trailers and containers in the TOFC/COFC operations of the nation's freight yards. The Drott 800 AC Travelift, distributed nationally by Mi-Jack Products Co., undergoes continuous design, engineering and handling improvements and modifications. One such modification is a sensing device which sounds a warning when Travelift approaches an object 15 ft from itself; the device warns a person in line with the wheels and also notifies the operator in the cab that he is approaching a person or an object.

Circle 65 on reader service card

NO PRICE INCREASE
MONEY BACK GUARANTEE

1079 **In Days of Steam**—Merry Christmas and a Happy New Year

25 YEARS OF HAPPY
MAIL ORDER CUSTOMERS

1080 **GG-1 On A Christmas Run**—May the Peace and Happiness of the Christmas Season abide with you, etc.

1082 **Canadian National in a Winter Wonderland**—Best Wishes for the Holidays and all the New Year

# CHRISTMAS CARDS OF TRAINS

Silver Anniversary 1974 Our 25th Year of Christmas cards by mail

Send a full-throttle "Merry Christmas" with these rich 5" x 7" cards. Full-color scenes are by famous train artist Howard Fogg. Scenes described inside with place, date and identification. Cards can be printed with your name inside and your address on the deluxe white envelopes. Extras included. Try our "Highballin' Express Service" from now 'til Christmas!

**Keep the warm tradition of Christmas with Train Cards.**

T852 **Frosted Steam**—Merry Christmas and a Happy New Year

T810 **The C. & S. On Top of the World**—Happy Holidays and Best Wishes for the Coming Year

T808 **The Wabash Cannonball**—With Best Wishes at Christmas and Happiness through all the Coming Year

T612 **The Lackawanna Rolls East**—With every good wish for Christmas and the New Year

T408 **Donner Pass on Christmas Day**—Peace and Good Will at Christmas and through all the New Year

T406 **Christmas Eve in the Yards**—May the Spirit of Christmas Abide with You Throughout the Coming Year

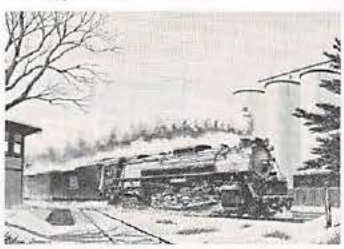
1081 **"Renewing friendships we cherish"**—Merry Christmas and Happy New Year

T807 **Pride of the Northwest**—Merry Christmas and Happy New Year

T610 **Holiday Local to the North Country**—Peace and Good Will at Christmas and through all the New Year

T803 **Green Flags for a Christmas Run**—May the meaning of the Season be deeper... this year

T925 **Night Run in the Rockies**—May the Spirt of Christmas be with you throughout the Coming Year



1083 **Rock Island Rolls West**—May Peace be your Gift at Christmas and your Treasure through all the Year

T509 **Fresh Trees and Full Steam**—With Best Wishes at Christmas and through all the New Year

T405 **Crescent Limited on a December Run**—Christmas Greetings and Best Wishes for all the Year

ORDER DIRECT FROM THIS AD OR SEND FOR FREE SAMPLE AND CATALOG

**Keep the old-fashioned friendship and spirit of Christmas with Train Cards.**

**HOW TO ORDER:** Write in total quantity and dollar amount remitted in proper spaces. Mix and assort at no extra cost. Order all of one kind or as many of each as desired. Fill out coupon, or order by letter, and mail with check or money order. Add postage and handling fee to price of order. Canadian residents remit in U.S. dollar values. Customs duty charged in Canada. Colorado residents add 3% sales tax. California residents add 6% use tax. No C.O.D. Thank you kindly!

| TOTAL QUANTITY | 12 | 25 | 37 | 50 | 75 | 100 | 125 | 150 | 200 | 300 | 500 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WITHOUT NAME | $2.75 | $4.75 | $ 7.15 | $ 9.50 | $14.00 | $18.00 | $22.25 | $26.50 | $35.00 | $52.00 | $84.50 |
| WITH NAME | 4.25 | 6.50 | 9.15 | 11.75 | 16.50 | 20.75 | 25.25 | 29.75 | 38.75 | 56.75 | 91.25 |
| ADDRESS ON ENV. | 1.75 | 2.00 | 2.25 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 4.00 | 5.00 | 7.00 |

**Postage and Handling Fee:** Orders to $7.99 add 60¢ • $8.00 to $23.99 add 80¢ • $24.00 and up add $1.00

| FILL IN QUANTITY DESIRED OF EACH CARD BESIDE CARD NUMBER AT RIGHT | | | | |
|---|---|---|---|---|
| | T405 | T612 | T810 | 1080 |
| | T406 | T803 | T852 | 1081 |
| | T408 | T807 | T925 | 1082 |
| | T509 | T808 | 1079 | 1083 |
| | T610 | RUSH FREE SAMPLE AND CATALOG ☐ | | |

Write in Total Cards Ordered ____ Write in Total Payment Enclosed $____

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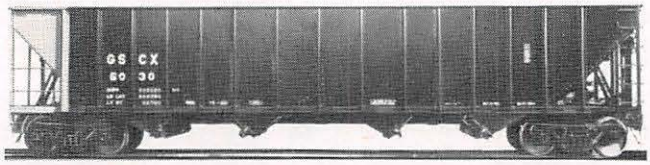
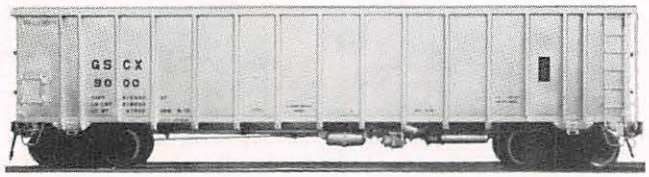
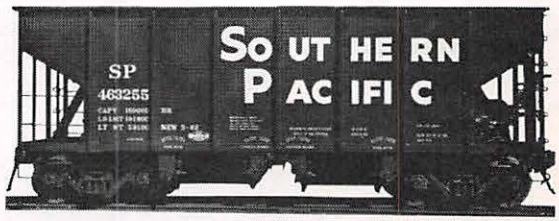
# Many of the in the toughest service

We just built two, 128-foot, articulated cars which go a long way to protect automobiles against theft and vandalism. Several thousand, open top hopper cars will soon be moving coal out of the

**UNIT TRAIN**





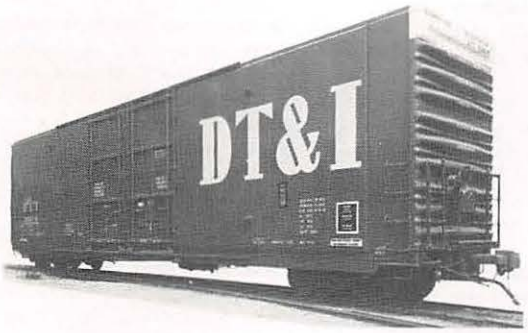




new coal fields in the west in unit coal train service. Other Greenville cars are helping aggregate producers move their products to market more economically. And, we're fully ready to assist with cars for the movement of forest and steel products.

**WOODCHIPS**

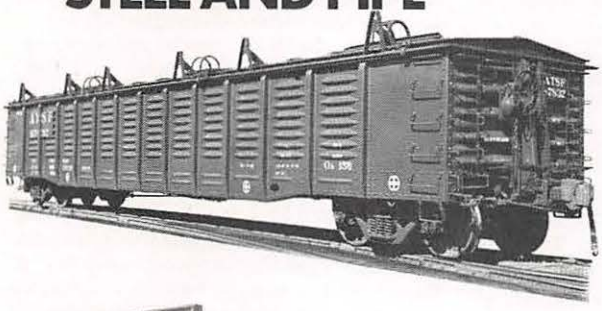
# newest cars, come from Greenville

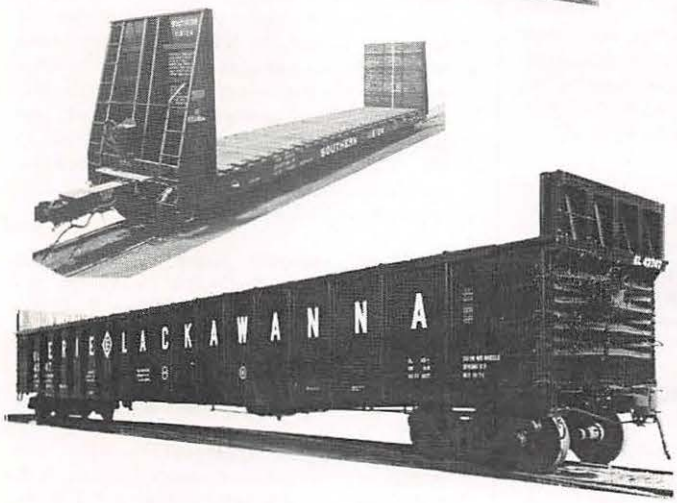
We move fast, build well and we're often a step ahead.




**HIGH CUBAGE**

**STEEL AND PIPE**





Take a look at your growing markets. Check the areas in which Greenville design can give you a competitive advantage.

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We'll give it our best effort.

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**STEEL CAR COMPANY**
SUBSIDIARY OF PITTSBURGH FORGINGS COMPANY
GREENVILLE, PENNSYLVANIA 16125
PHONE: 412-588-7000

Circle 16 on Reader Service Card

# People in the News

**AMTRAK.**—**Jerry W. Friedheim,** Assistant Secretary of Defense (Public Affairs), appointed vice president, public and government affairs for Amtrak. **Bruce O. Pike,** formerly head of his own Washington-based counseling firm, named director of congressional affairs for Amtrak. **Arthur L. Lloyd,** manager of agency, tour and international sales, named director—Western Region.

**BOSTON & MAINE.**—**David J. Hughes,** special assistant to the president and chief executive officer, appointed vice president, Billerica, Mass.

**BURLINGTON NORTHERN.**—**Robert J. Seeley,** general manager locomotive management systems, St. Paul, named regional mechanical manager, Chicago, to succeed **Thomas G. Kotnour,** appointed executive assistant, mechanical division, St. Paul (RA, Aug. 26, p. 39).

**FRISCO.**—**T.L. Sullivan** named assistant superintendent transportation, Springfield, Mo., and **P.A. McGinn,** assistant superintendent, Fort Smith, Ark. **J.R. Beatty** and **F.A. Peebles** appointed road foremen of equipment, Tulsa, Okla. Trainmasters named are **C.C. Stephenson,** Fort Smith; **R.E. Townes,** Hugo, Okla.; **R.L. Speir,** Birmingham, Ala.; **C.L. Coley,** Memphis, Tenn.; **D.W. Patton** and **R.E. Tyndall,** Springfield; **G.W. Campbell,** Enid, Okla. **F.P. VanHoozer** named general yardmaster, Memphis. **C.D. Sharp** appointed general agent, Enid.

**J.T. Walker,** assistant district sales manager, New York, named district sales manager there, to succeed **W.J. Irwin,** retired.

**D.A. Klorer,** sales representative, Oklahoma City, Okla., named district sales manager, San Antonio, Tex., to succeed **H.L. Gilmore,** who retired recently after 31 years of service.

**ILLINOIS CENTRAL GULF.**—**Ralph von dem Hagen,** director-operating and capital budgets, named chief operations planning officer.

**Charles S. Catlett,** director of industrial development, Baton Rouge, La., advanced to the additional post of assistant to the senior vice president-traffic, to succeed **U.J. Burvant,** who retired Aug. 1. In his new assignment, Mr. Catlett will represent **ICG** in legislative matters in Louisiana.

**Dick Rogan,** director of chemical marketing, Chicago, named regional sales manager, New Orleans, to succeed **Dick Rushing,** appointed general manager-automotive, Chicago. **Richard Robey,** manager of profitability analysis, Chicago, appointed manager of business information-sales, New Orleans.

**Bob Williamson,** regional coordinator--intermodal sales, Chicago, named district manager-intermodal operations there.

**LOUISVILLE & NASHVILLE.**—**Alfred James, Jr.,** assistant vice president-terminals, Louisville, appointed assistant vice president-facility planning. **William T. Wallace,** director of labor relations, appointed assistant vice president-personnel and labor relations. **Kenneth W. Wiser,** staff assistant, executive department, appointed assistant to executive vice president. **Robert E. Lynch,** assistant manager, appointed manager, services and equipment, coal department, succeeding **Charles J. Wetzel,** retired. **Robert L. Zeh** succeeds Mr. Lynch. **Otis W. Steffy,** supervisor, material distribution, appointed assistant engineer, cost control.

**David L. Roth,** manager, terminal planning and administration, appointed assistant to general superintendent-transportation.

**Fred R. Birkholz,** general attorney, appointed general solicitor. **John F. Smith,** commerce attorney, named general attorney. **August A. Sedelmeier** appointed manager of employment. **Darace M. Pedigo,** director of intermodal pricing, retired Aug. 31.

Welborn E. Alexander
PC

John W. Rudibaugh
Railroad Dynamics

**PENN CENTRAL.**—**Welborn E. Alexander, Jr.,** assistant vice president-reorganization staff, appointed vice president-marketing. **C. Decker Ploehn,** sales representative, appointed district sales manager, with headquarters as before at Davenport, Iowa, succeeding **Lucas M. Bay,** named manager equipment coordination-sales for the system at Philadelphia. Mr. Bay succeeds **Thomas E. Milholland,** appointed division sales manager, Buffalo, N.Y. Mr. Milholland replaces **Donald L. Crum,** appointed manager of national accounts, sales department, Philadelphia.

**READING.**—**Andrew Negro,** general manager-marketing, Philadelphia, appointed assistant vice president-traffic. **John D. Grier,** assistant vice president-sales, named assistant vice president-marketing, succeeding the late **Herbert J. Lobb. Thomas J. Fitzpatrick,** product manager-marketing, appointed general manager-marketing.

**V.W. Bigelow** appointed assistant vice president-personnel and labor relations; **S.H. Heltzinger,** director labor relations; **F.J. Domzalski,** and **V.F. Cronan,** assistant managers labor relations.

The following promotions have been made: **Donald C. Lengle,** manager locomotive shop; **Robert H. Paul,** mechanical superintendent locomotive equipment; **Donal P. Wilson,** assistant superintendent inspection and maintenance; **Jay H. Moyer,** master mechanic; **John R. Baranko,** general foreman locomotive shop; and **Howard J. Glass,** engineering supervisor-equipment.

**John A. Brennan, Jr.,** assistant to vice president-finance, named vice president-finance and comptroller. **Thomas J. Giblin** comp-


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troller, promoted to assistant vice president-finance and comptroller. **Robert A. Sutherland,** assistant comptroller, named assistant to vice president finance and comptroller. **Manuel Miller,** manager taxes and insurance, promoted to director-taxes and insurance.

**James E. Frick,** assistant to the president, named senior assistant to the president. **J. Stewart Warden,** assistant vice president-administration and passenger services, named assistant to the president and will continue to be responsible for contractual negotiations of Reading's passenger service with the Southeastern Pennsylvania Transportation Authority.

**H. James Palmer,** manager, contract passenger services, named director of passenger services.

**RICHMOND, FREDERICKSBURG & POTOMAC.—James C. Hobbs,** engineer track and structures, Richmond, Va., appointed assistant chief engineer there. **James R. Smith, Jr.,** general yardmaster, Acca Yard, Richmond, appointed division engineer–system.

**SEABOARD COAST LINE—LOUISVILLE & NASHVILLE.—F.L. Fairfax** appointed district sales manager, Greenville, S.C.

**G.R. Wurtele,** manager industrial development–engineering, Birmingham, Ala., transferred to Jacksonville. **R.L. Waycaster** appointed assistant manager industrial development, Atlanta, Ga. **F.C. Marler, Jr.** named general agent, Atlanta.

**SOO LINE.—Norvin A. Stiyer** appointed manager of computer operations.

**SOUTHERN PACIFIC.—Howard H. Hamilton,** assistant to vice president of purchasing, named assistant vice president of purchasing, San Francisco, to succeed **George C. Freeborn,** retired (RA, Aug. 12, p. 44).

The SP has reorganized the Disbursements Office into the following sections: Disbursements Accounting, **Mrs. A.M. Amiotte,** acting manager; General Accounting, **W.S. Saia,** manager; Property Accounting, **B.L. Engle,** acting manager.

## SUPPLIERS

**John W. Rudibaugh** has been appointed vice president of marketing, **Railroad Dynamics Inc.,** Newtown Square, Pa.

**Robert J. Cook** has been appointed sales manager-mass transit, **Westinghouse Air Brake Division** of **WABCO, Ltd.,** at Hamilton, Ont., Canada.

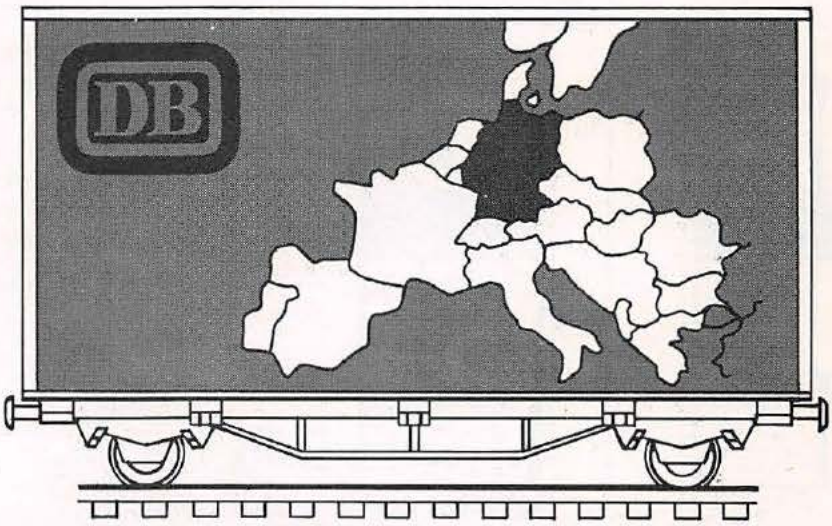
**William F. Lawson** has been promoted to manager, materials handling, Consulting Division, **McDowell-Wellman Engineering Co.,** Cleveland, Ohio.

**Bernard R. Smith** has been appointed central sales manager, **Pullman Transport Leasing Co.,** Chicago. He was formerly sales representative, **Pullman-Standard division of Pullman Incorporated,** Birmingham, Ala.

## OBITUARY

**James A. Terhorst,** 44, superintendent, Western Division, **Western Pacific,** died Aug. 21 at Sacramento, Calif.


# Shipping cargo to Germany
## ...and to the rest of Europe?

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dependable, economical, efficient rail freight, container, cargo, and door-to-door service.

**PICK-UPS ANYWHERE!** We'll pick up your cargo anywhere. At sidings in every seaport in Germany. And anywhere in Europe.

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ANYTIME—AND ON TIME
...WHERE THE TRAINS
STILL RUN ON TIME

OUR JOB IS TO HELP YOU—The freight forwarder, the traffic manager, every shipper at every company, airline and steamship line.

**CONTACT GERMANRAIL**—For information on rates, schedules, door-to-door service—any shipping problem you may have, any details you may require about freight and cargo transport in Germany and the rest of Europe. Just one phone call—if we can't give you your answer immediately, we'll Telex our overseas offices and get right back to you.

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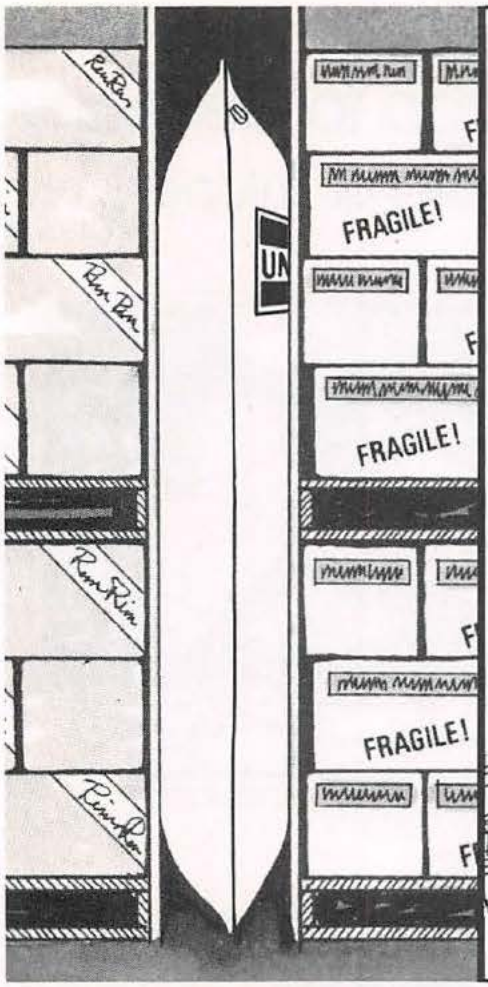


# Private stock.

If you own or use assigned railroad cars, you should be "shoring" with Uniroyal INFLATABLE RUBBER DUNNAGE. It's reusable, long lasting, and cuts damage prevention costs.

Made of tough synthetic rubber and box woven nylon fabric, Uniroyal's reusable rubber dunnage takes "humps" in stride to eliminate in-transit damage.

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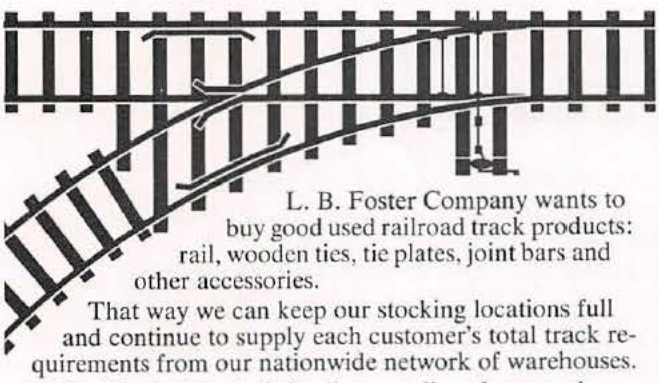
# Wanted: Used rail and accessories



L. B. Foster Company wants to buy good used railroad track products: rail, wooden ties, tie plates, joint bars and other accessories.

That way we can keep our stocking locations full and continue to supply each customer's total track requirements from our nationwide network of warehouses. We're North America's leading supplier of new and used track products. So if you want to sell—or buy—contact L. B. Foster Company, Seven Parkway Center, Pittsburgh PA 15220.

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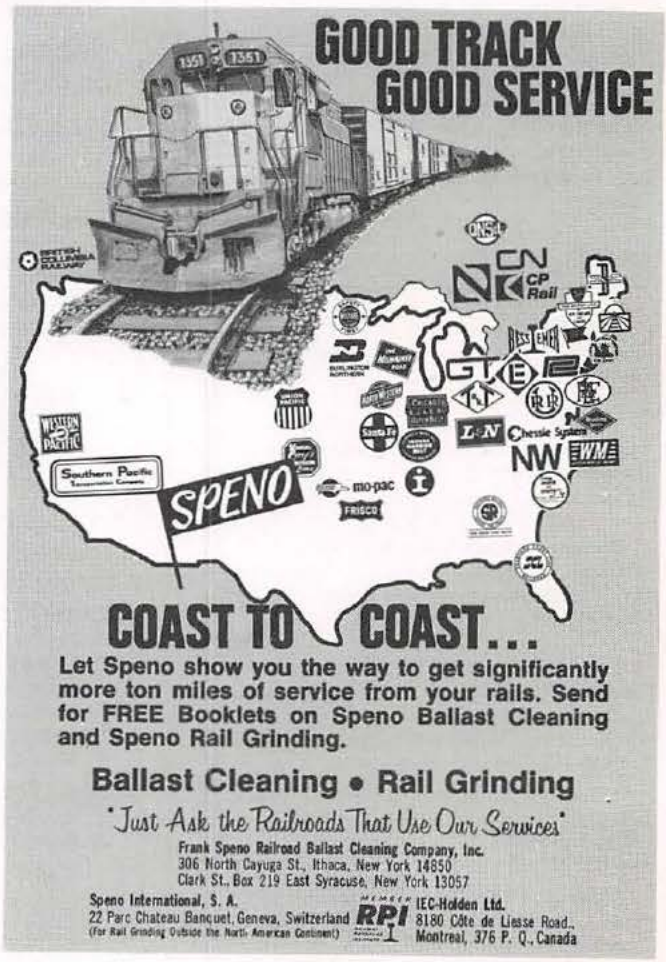


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# Market Outlook

## CARLOADINGS

Loadings of revenue freight in the week ended Sept. 14 totaled 524,985 cars, according to the Association of American Railroads. This was an increase of 73,806 cars, or 16.4%, compared with the previous week, and a decrease of 42,018 cars, or 7.4%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Sept. 14 are estimated at 16.4 billion, a decrease of 6.1% below the corresponding week of 1973.

### REVENUE FREIGHT CARLOADINGS

| Commodity | Sept. 14 week | Sept. 7 week | Aug. 31 week |
|---|---|---|---|
| Grain | 22,076 | 19,943 | 23,215 |
| Farm products | 5,803 | 4,901 | 6,042 |
| Metallic ores | 48,280 | 44,442 | 49,536 |
| Coal | 95,835 | 82,850 | 100,518 |
| Crushed stone, gravel & sand | 28,236 | 24,811 | 29,874 |
| Nonmetallic minerals | 16,796 | 16,514 | 17,368 |
| Grain mill products | 20,404 | 16,931 | 20,491 |
| Food and kindred products | 24,533 | 21,387 | 24,707 |
| Primary forest products | 23,444 | 18,960 | 23,402 |
| Lumber & wood products (except furniture) | 13,370 | 11,488 | 14,773 |
| Pulp, paper & allied products | 22,651 | 18,765 | 23,810 |
| Chemicals & allied products | 28,358 | 24,681 | 27,968 |
| Petroleum products | 8,994 | 7,979 | 8,945 |
| Stone, clay & glass products | 21,884 | 18,300 | 21,335 |
| Coke | 7,791 | 7,650 | 8,105 |
| Metals & products | 25,410 | 22,730 | 27,310 |
| Motor vehicles & equipment | 24,232 | 18,599 | 21,199 |
| Waste & scrap materials | 18,538 | 14,906 | 18,535 |
| Forwarder & shipper assn. traffic | 10,426 | 9,046 | 10,788 |
| All other carloads | 57,381 | 48,553 | 59,862 |
| LCL traffic | 543 | 402 | 430 |
| **Total cars loaded** | **524,985** | **453,838** | **538,213** |

| Cumulative total, 37 weeks | 1974 | 1973 |
|---|---|---|
| | **19,100,832** | **19,308,084** |
| Estimated revenue ton-miles (billions) 37 weeks | 613.0 | 597.5 |

## PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Sept. 7 totaled 25,356 cars (4.7% below the corresponding week last year) and 41,375 trailers or containers (down 9.3% from 1973). Cumulative volume for the first 36 weeks of 1974 is 1,077,778 cars (up 3.3% from last year) and 1,864,998 trailers or containers (up 3.3% from 1973).

## IN CANADA

Canadian railway revenue freight loaded in the 10-day period ended Aug. 31 totaled 6.9 million tons, up 141.1% from 1973. Cars loaded increased 192.8% to 117,184. Cumulative loadings for 1974 were up to 160.1 million tons (4.7% above 1973).

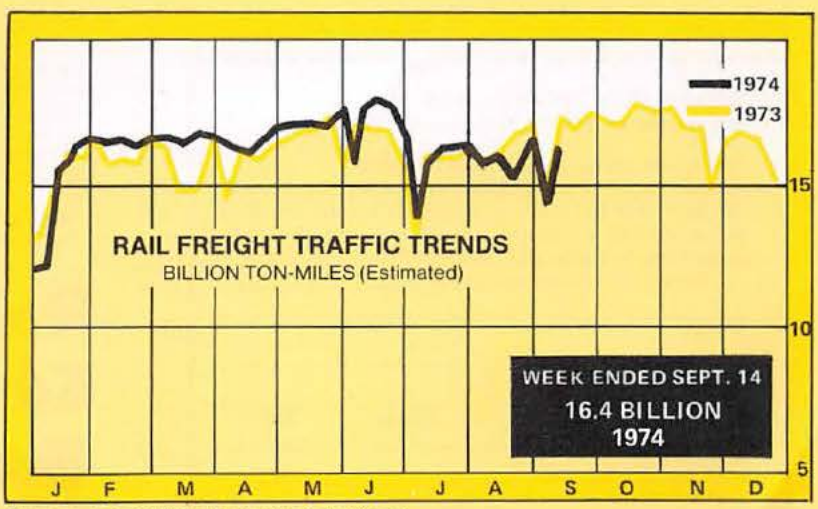
● *Budd Co.*—Announced that its associate in Brazil, Material Ferroviaria S.A. (Mafersa), has received a $35-million order from Rede Ferroviario Federal S.A. to build 90 85-ft stainless steel multiple-unit passenger cars. Mafersa will build the cars at its Sao Paulo plant, using Budd design and technology. The cars will duplicate Budd-designed cars previously produced by Budd and Mafersa in 1957. Delivery is scheduled to begin in early 1976, with completion planned for late 1977. The cars will be operated by the E.F. Santos Jundiai Railway in suburban Sao Paulo. Trucks for the new cars will be supplied by Budd's Railway Division, whose direct participation in the order represents $5 million in sales. An additional $8 million of the $35-million contract will involve other American suppliers.

● *Chicago & North Western.*—Ordered 60 diesel-electric units—35 3,000-hp, 15 1,500-hp and 10 2,000-hp—from Electro-Motive at a total cost of more than $22 million. Deliveries are scheduled for first quarter 1975.

● *General Electric.*—Ordered from WABCO's Westinghouse Air Brake Division 100 sets of a newly designed tandem brake control arrangement for application to 28LAV-1 vacuum brake equipment for South African Railway shunter-type locomotives. The new dual brake control system allows an engineman to move from one side of the cab to another with complete continuity of the brake control functions, thus increasing operating visibility and safety.

● *National of Mexico.*—A multi-million-dollar order for railroad machine tools for the NofM is being filled at the Simmons Machine Tool Corp. plant in Albany, N.Y. The order is part of a $53-million expansion program by the railroad. Simmons is building car wheel lathes, car wheel borers and axle lathes for the railroad.

● *Norfolk & Western.*—Ordered from WABCO's Union Switch & Signal Division Total Radio Control equipment to provide direct voice radio communications between the dispatcher in Roanoke, Va., and all train crews operating between there and Winston-Salem, N.C., 121 miles. The dispatcher-operated equipment will be installed in an existing WABCO traffic control center in Roanoke.




*Source: Association of American Railroads*

# Here's a great way for someone to pull himself up by his own bootstraps

**If you know someone who has what it takes, pass this along to him. You'll be doing him a big favor!**

## Announcing new Skill Improvement Programs

- ☐ Trailer Hitches—4 lessons (12.80)
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- ☐ 645E3 Engine Maintenance—12 lessons (38.40)
- ☐ Alignment of Rotating Equipment—1 lesson (3.20)
- ☐ Locomotive Journal Boxes—2 lessons (6.40)
- ☐ Electronics on the Rails—Transistors—Controlled Rectifiers
- ☐ Special Diodes, etc.—6 lessons (19.20)
- ☐ TOFC Rules of Interchange—1 lesson (3.20)
- ☐ Static Voltage Regulators—2 lessons (6.40)
- ☐ Machine Shop Practice—20 lessons (64.00)
- ☐ Journal Box Repacking—1 lesson (3.20)
- ☐ SD45 or GP38 (specify) Locomotive Mechanical—5 lessons (16.00)
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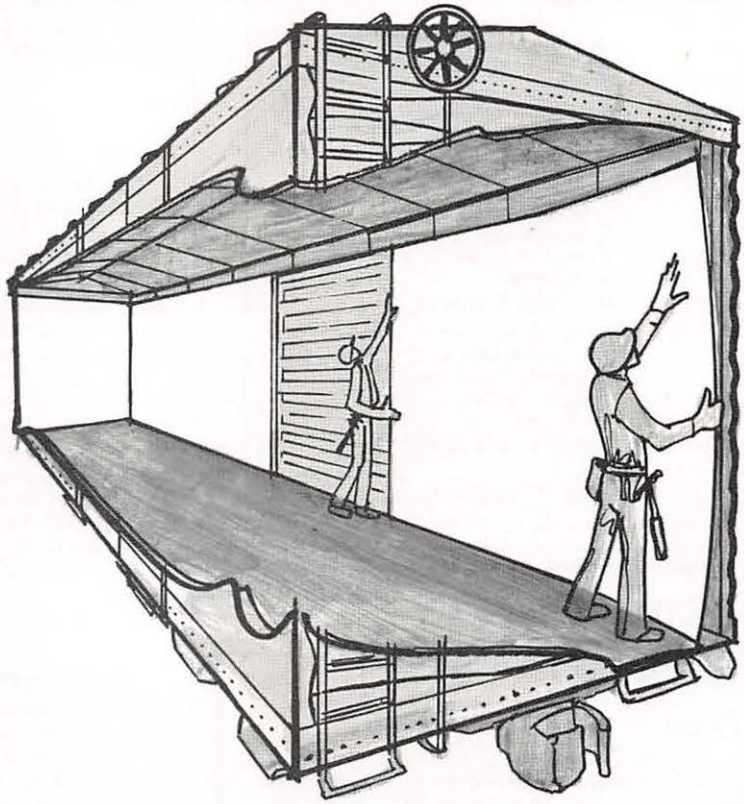


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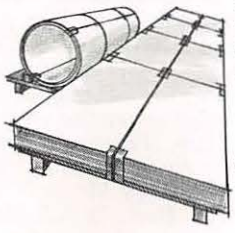

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The demand of the public has been obeyed in increased weight and speed of trains and the weight of the carload has been enormously increased, while the corresponding advance in track construction has never been fully made. On the majority of our roads it is doubtful if the comparative relations of track and traffic are an improvement upon those of 30 years ago. . .When the finance committee of a railway, whose roadbed and track has notoriously depreciated, successfully resists the urgent appeal of operative officials for a larger apportionment for maintenance of way, in the general appropriation for betterments, on the ground that most was needed for cars and engines—"something that would earn dividends," it makes a creditable display of zeal in the supposed interest of the stockholders, but entire want of experience in or acquaintance with railway mechanics blinds that department to the fact that eventually maintenance of way contributes as much to the earning power as any other department, and that upon a competitive road poor track and poor equipment are, in this respect, upon a practical equality when the yearly statement is made up. (Paper read before the Roadmasters Association at Detroit, September, 1899, by Mr. R.F. Coates, New York New Haven & Hartford Railroad.)

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# Viewpoint

## Price jockeying keeps grain cars idle

When Railway Age did a mini-survey of the grain-movement and car supply situations a few weeks ago, the basic findings were both good and bad: (1) Grain movements were down somewhat from 1973 levels but up substantially from 1972 and, contrary to some reports published elsewhere, car-shortage conditions had not developed; but (2) an awful lot of grain was being held back and, RA warned, if that grain began moving at the same time the fall harvest started coming in, car-"short" railroads could find themselves victimized again by politicians and press (RA, Aug. 26, p. 20).

Want confirmation of that? It comes from Jack Bowen, general superintendent-transportation of UP. As of early September, Bowen had close to 2,500 box cars stored—and those cars, totally unproductive, represented an investment of about $75 million. Meanwhile, consider what UP has been spending in recent years for new equipment: more than $100 million in 1972, in 1973 and in 1974. Consider that even well-to-do UP cannot afford to continue to plunge into the equipment market in that fashion—not at recent and current interest rates—if freight cars ($18,000-plus average cost, and many much higher in price) are going to stand idle for any significant amount of time.

Elsewhere in this issue, Railway Age reports (page 20) on recent and ongoing railroad-research projects, and on areas which researchers believe should be stressed in the future. These projects are, in the main, projects designed to produce better equipment and better fixed plant and better ways of utilizing both equipment and plant. They represent—and will continue to represent—a substantial and growing expenditure, on the part of railroads and AAR, suppliers, government. Their ultimate goal is the provision of better service, better-quality service—for the benefit of the railroads, sure, but also for the benefit of the users of rail transportation.

Missing in all this—in stories involving such things as UP's equipment spending and its car-surplus problems, such things as research programs for better service—is much mention of the obligation or the responsibility, call it what you like, of the transportation user. True, if a producer—farmers, anybody—wants to hold his product back until prices go up, a transportation company can't tell him: "Move it." But true, too, if that producer operates in a "nothing-now, everything-all-at-once" fashion, he has to accept the consequences—because there's not a common carrier anywhere (rail, truck, air, water, whatever) that's going to stockpile equipment for use when the mood strikes or the price is right.

### AT SHORTAGE TIME, DON'T BLAME THE RAILROADS

It should be noted, of course, that there are a lot of reasons why specific commodities don't move. Building products, for instance, haven't been moving because homes aren't being built. But grain, the feeling is, hasn't been moving mainly because of price-jockeying. And in cases like this, maybe what's needed is a new commodity-marketing concept—though something like that sort of change would throw a lot of people into a tailspin. UP's Jack Bowen doesn't suggest anything so drastic as that; what he does suggest is that "it certainly would be much better for all concerned if we could start moving some of this grain in storage right now—before the combines begin rolling this fall."

Politicians please take note. And if there's to be a '74 car shortage, try to resist the knee-jerk reaction of blaming the railroads.

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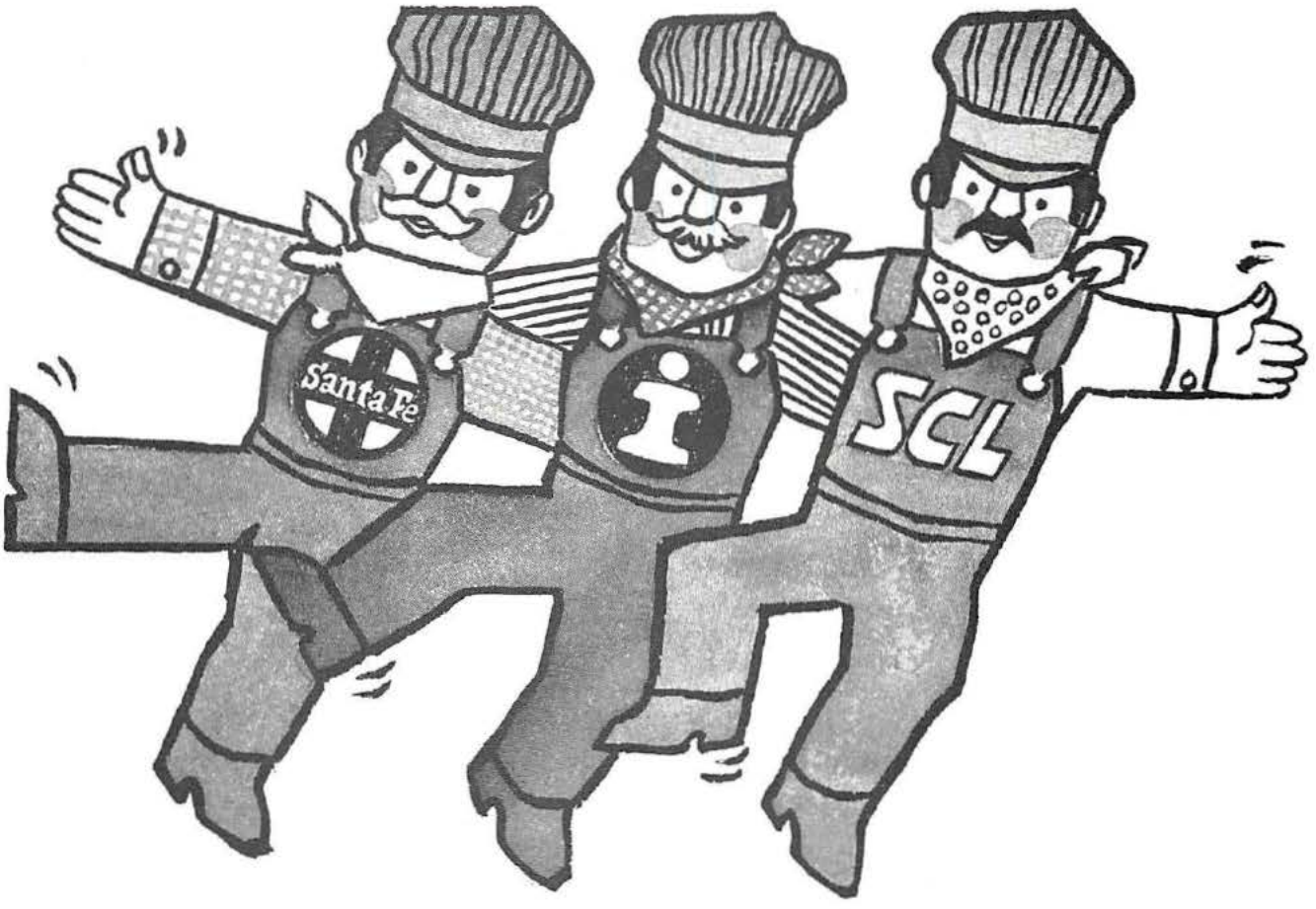


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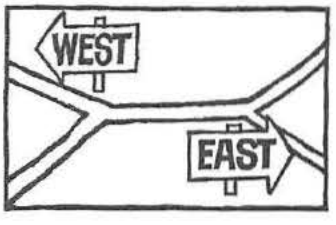


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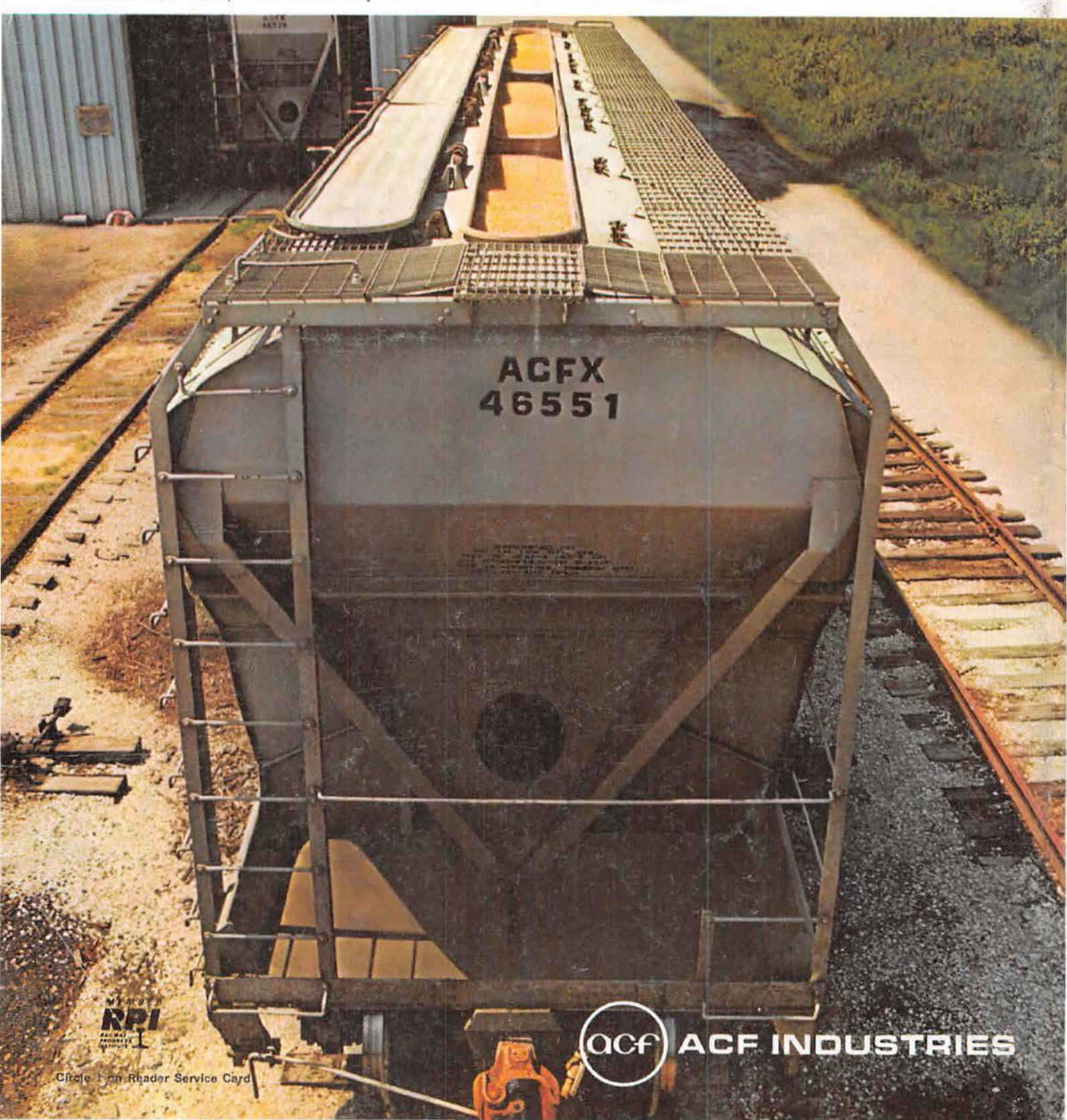


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